

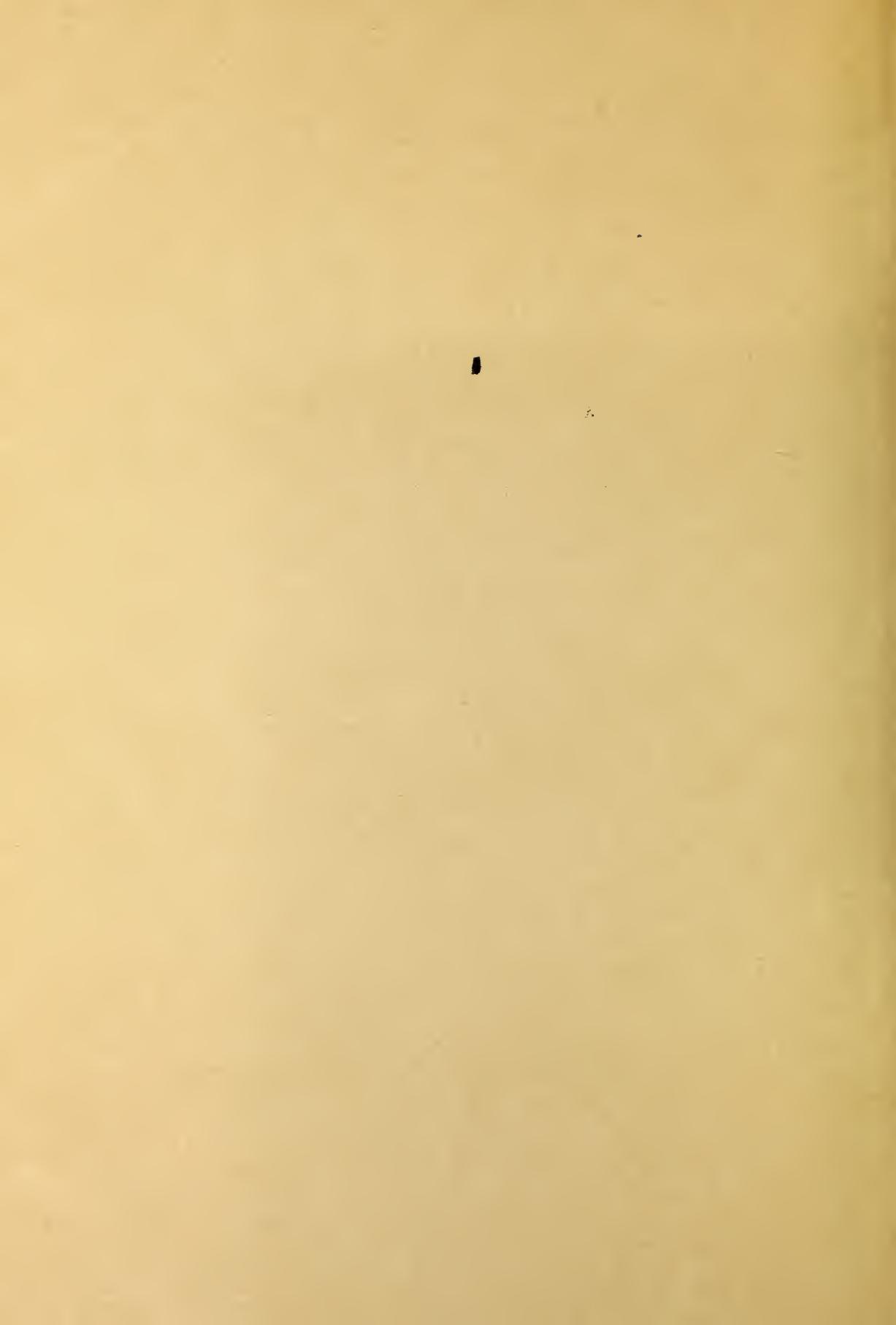
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DENSITY OF SEA WATER
AT TIDE STATIONS
PACIFIC COAST
NORTH AND SOUTH AMERICA
AND PACIFIC OCEAN ISLANDS

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SPECIAL PUBLICATION NO. 281
FOURTH EDITION
(WITH DATA THROUGH 1953)

U. S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
WASHINGTON



U. S. DEPARTMENT OF COMMERCE
SINCLAIR WEEKS, Secretary
COAST AND GEODETIC SURVEY
ROBERT F. A. STUDDS, Director

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UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1954

CONTENTS

	Page
Introduction-----	1
Index map-----	2
List of stations-----	4
Table 1. Density of sea water-monthly and yearly means and extremes at tide stations-----	6
Mean salinity curves - seasonal variation at tide stations-----	56
Table 2. Corresponding densities and salinities---	62
Sea water density at various temperatures-----	63

III



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INTRODUCTION

The summaries of sea water densities presented in this publication are based on observations made in the Pacific harbor and coastal waters through the year 1953. The densities were observed primarily at tide stations which, in the United States and possessions, were maintained by the Coast and Geodetic Survey, often with the cooperation of other organizations. Summarized data for five places on the California coast, namely Balboa, Port Hueneme, Pacific Grove, North Farallon Island and Blunts Reef Lightship, were supplied by the Scripps Institution of Oceanography. Final results for places in Chile were supplied by the Departamento de Navegación e Hidrografía, República de Chile, and for the Philippine Islands by the Bureau of Coast and Geodetic Survey of the Republic of the Philippines. For other countries the Coast and Geodetic Survey derived the data from observations made by organizations in the countries concerned. In Latin America the observations were obtained through the cooperation of the Inter American Geodetic Survey.

Table 1 presents monthly means and annual mean and extremes for each year of observations. Maximum and minimum densities are shown for each year in which observations were made, whether or not the observations covered the whole year. In all cases the yearly extremes are from the months of the year for which means are given. If they are from an incomplete year, they are followed by an asterisk.

For each station at which the series of observations covered two or more years, there are given also the following monthly values for the series: the mean of the monthly means together with its corresponding salinity, the maximum density observed, the mean of the monthly maxima, the mean of the monthly minima, and minimum observed.

Following the table of densities are graphs of monthly mean salinities showing the seasonal variation for many places listed in Table 1.

The observations are made by drawing a sample of water from near the surface and observing its density by means of a hydrometer. They are usually made once each weekday at whatever time the observer attends the tide gage. It may be assumed that in the course of a month or a year the distribution of observations is fairly uniform over all phases of the tide. At some stations situated within or near the entrance of an estuary, the density varies with the stage of the tide or with the direction of the tidal current.

The densities in Table 1 are given with respect to the density of pure water at a temperature of 4°C. (39.2°F.) as unity. The actual density of the water may vary from a little less than unity for fresh water at a temperature other than 4°C. to approximately 1.0310 for the heaviest sea water. Since the density of sea water, as observed, depends not only upon the amount of soluble matter contained in a unit volume but also upon the temperature of the water at the time the reading was made, it is necessary to reduce the observed densities to some standard temperature in order that they may be comparable. In this publication the observed densities have been reduced to a standard temperature of 15°C. (59°F.). The density of pure water free from air at a temperature of 15°C. is 0.9991.

The salinity of sea water, denoted by the symbol 0/00, is defined as the number of grams of salts contained in 1000 grams of sea water. Salinity can be determined by several different methods, one of the simplest being based upon the density of the water as obtained from the use of the hydrometer. Table 2 gives the salinity corresponding to different values of density at the standard temperature of 59°F. (15°C.) to which all densities in this publication are referred.

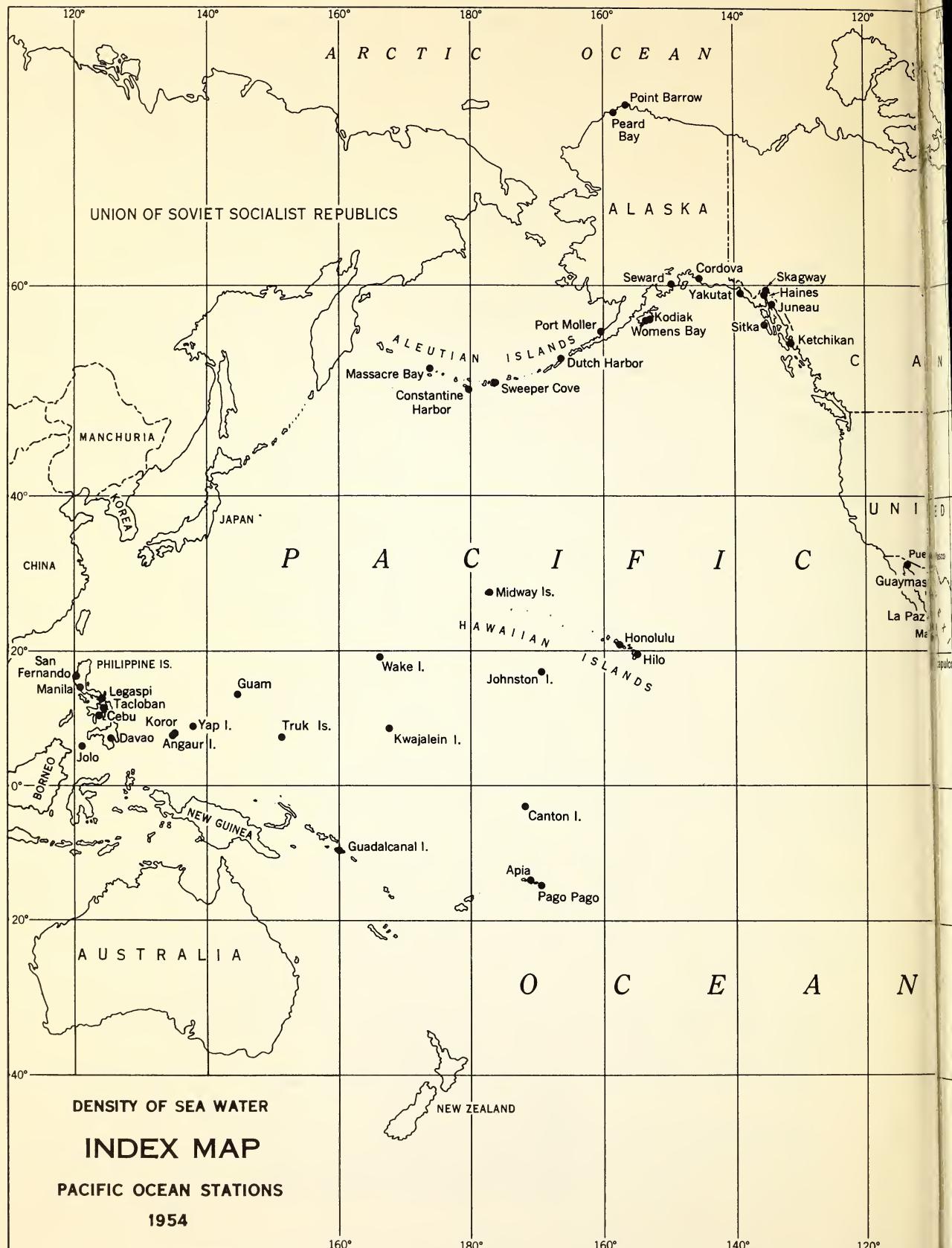
For some practical uses of density data, it is more important to know the density at the temperature apt to be encountered than at the standard temperature. The graph, Sea Water Density at Various Temperatures, provides for converting density at 59°F. (15°C.) to density at other temperatures.

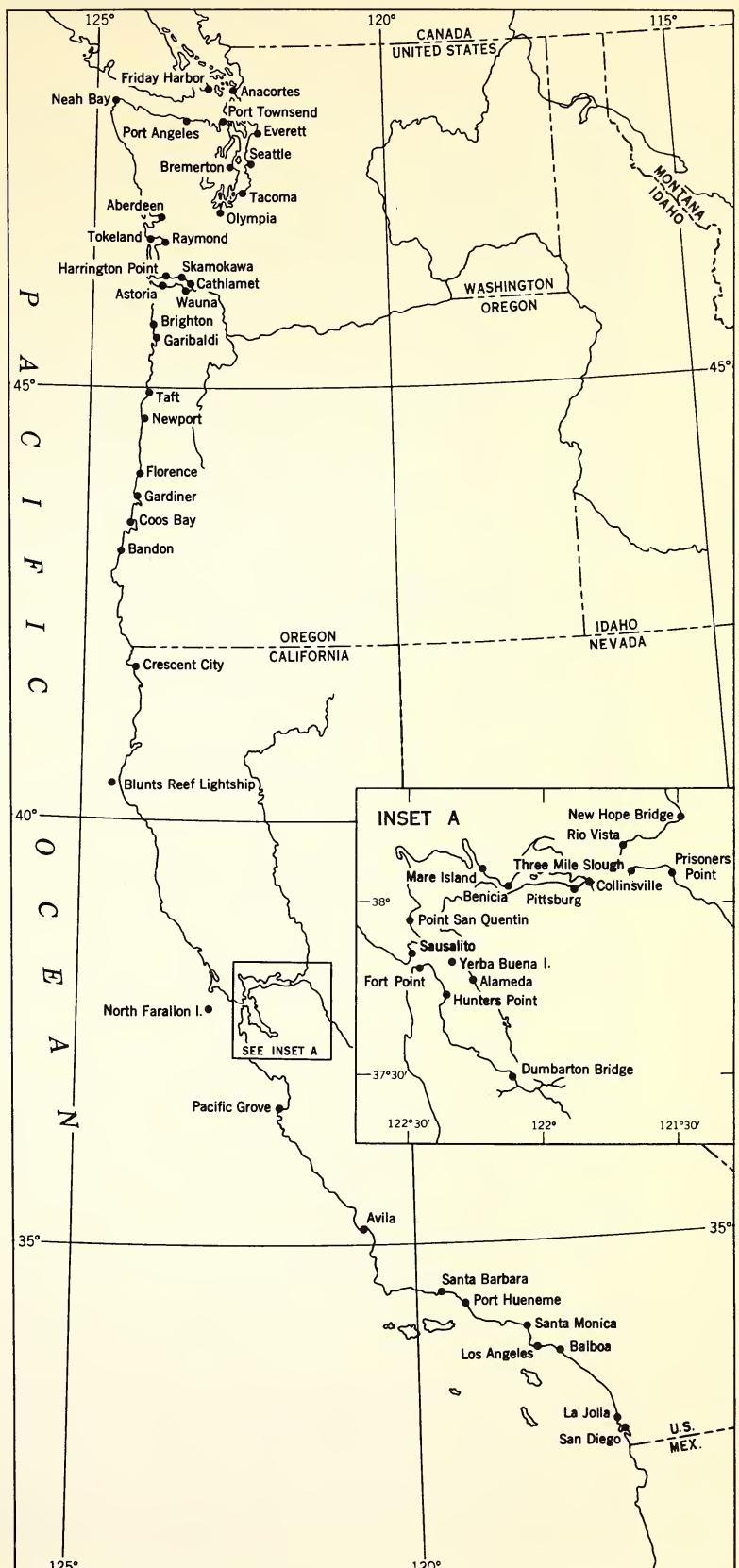
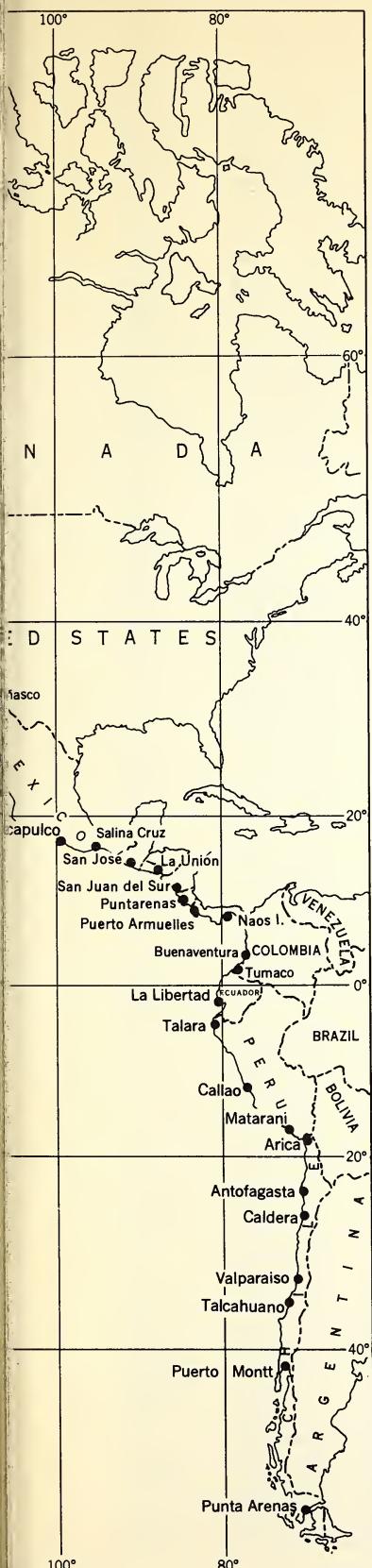
The following publications complete this series:

Special Pub. No. 278. Surface Water Temperatures, Atlantic Coast, North and South America.

Special Pub. No. 279. Density of Sea Water, Atlantic Coast, North and South America.

Special Pub. No. 280. Surface Water Temperatures, Pacific Coast, North and South America and Pacific Ocean Islands.





LIST OF STATIONS

Station	Lat. ° ° '	Long. ° ° '	Page
Aberdeen, Grays Harbor, Wash.	46 58N.	123 51W.	21
Acapulco, Mexico	16 51N.	99 55W.	54, 61
Alameda, Calif.	37 47N.	122 18W.	13, 56
Anacortes, Wash.	48 31N.	122 37W.	25
Angaur Island, Palau Islands	6 54N.	134 08E.	41
Antofagasta, Chile	23 39S.	70 25W.	47
Apia (observatory), Samoa Islands	13 48S.	171 46W.	39, 59
Arica, Chile	18 29S.	70 20W.	48
Astoria (Tongue Point), Ore.	46 13N.	123 46W.	18, 57
Avila, Calif.	35 10N.	120 44W.	10, 56
Balboa, Calif.	33 36N.	117 54W.	7
Bandon, Coquille River, Ore.	43 07N.	124 25W.	17
Benicia, Carquinez Strait, Calif.	38 03N.	122 08W.	14
Blunts Reef Lightship	40 26N.	124 30W.	16, 56
Bremerton, Wash.	47 34N.	122 38W.	23
Brighton, Nehalem River, Ore.	45 40N.	123 56W.	18
Buenaventura, Colombia	3 54N.	77 05W.	51
Caldera, Chile	27 04S.	70 50W.	47
Callao, Peru	12 03S.	77 09W.	49, 60
Canton Island, Phoenix Islands	2 48S.	171 43W.	38
Cathlamet, Columbia River, Wash.	46 12N.	123 23W.	20
Cebu, Cebu Island, Philippine Islands	10 18N.	123 54E.	43, 60
Collinsville, Sacramento River, Calif.	38 04N.	121 51W.	15
Constantine Harbor, Amchitka Island, Alaska	51 25N.	179 17E.	34
Coos Bay entrance, Ore.	43 21N.	124 19W.	17
Cordova, Alaska	60 33N.	145 46W.	31
Crescent City, Calif.	41 45N.	124 12W.	16, 56
Davao, Mindanao Island, Philippine Islands	7 05N.	125 38E.	43, 60
Dumbarton Bridge, San Francisco Bay, Calif.	37 30N.	122 07W.	14
Dutch Harbor, Unalaska Island, Alaska	53 54N.	166 32W.	33, 59
Everett, Wash.	47 59N.	122 13W.	22
Florence, Siuslaw River, Ore.	43 58N.	124 06W.	17
Friday Harbor, San Juan Island, Wash.	48 33N.	123 00W.	25, 57
Gardiner, Umpqua River, Ore.	43 44N.	124 07W.	17
Garibaldi, Tillamook Bay, Ore.	45 33N.	123 54W.	18
Guadalcanal I. (Kukum), Solomon Islands	9 26S.	160 00E.	39
Guam (Apra Harbor), Marianas	13 26N.	144 39E.	41, 60
Guaymas, Mexico	27 55N.	110 55W.	55, 61
Haines, Alaska	59 14N.	135 26W.	29
Harrington Point, Columbia River, Wash.	46 16N.	123 39W.	20
Hilo, Hawaiian Islands	19 44N.	155 03W.	37, 59
Honolulu, Hawaiian Islands	21 18N.	157 52W.	36, 59
Johnston Island, Hawaiian Islands	16 45N.	169 31W.	37
Jolo, Jolo Island, Philippine Islands	6 04N.	121 00E.	44, 60
Juneau, Alaska	58 18N.	134 25W.	28, 58
Ketchikan, Alaska	55 20N.	131 38W.	26, 57
Kodiak, Kodiak Island, Alaska	57 47N.	152 24W.	32
Koror, Koror Island, Palau Islands	7 21N.	134 29E.	41
Kwajalein Island, Marshall Islands	8 44N.	167 44E.	40, 59
La Jolla, Calif.	32 52N.	117 15W.	6, 56
La Libertad, Ecuador	2 13S.	80 55W.	50, 60
La Paz, Mexico	24 10N.	110 19W.	55, 61
La Unión, El Salvador	13 20N.	87 49W.	53, 61
Legaspi, Luzon Island, Philippine Islands	13 09N.	123 45E.	42
Los Angeles (Outer Harbor), Calif.	33 43N.	118 16W.	7, 56
Manila, Luzon Island, Philippine Islands	14 35N.	120 58E.	42, 60
Mare Island Strait, Calif.	38 06N.	122 16W.	14
Massacre Bay, Attu Island, Alaska	52 50N.	173 12E.	35, 59
Matarani, Peru	17 00S.	72 07W.	48

LIST OF STATIONS—Continued

Station	Lat. ° ° '	Long. ° ° '	Page
Mazatlán, Mexico	23 11N.	106 26W.	55
Midway Islands, Hawaiian Islands	28 13N.	177 22W.	36,59
Naos Island, Canal Zone	8 55N.	79 32W.	51,61
Neah Bay, Wash.	48 22N.	124 37W.	21,57
New Hope Bridge, Mokelumne River, Calif.	38 14N.	121 29W.	16
Newport, Yaquina Bay, Ore.	44 38N.	124 03W.	18
North Farallon Island, Calif.	37 46N.	123 06W.	11
Olympia, Wash.	47 03N.	122 54W.	24
Pacific Grove, Calif.	36 38N.	121 55W.	11,56
Pago Pago, Samoa Islands	14 17S.	170 41W.	38
Peard Bay, Alaska	70 48N.	158 28W.	35
Pittsburg, New York Slough, Calif.	38 02N.	121 53W.	15
Point Barrow (Elson Lagoon), Alaska	71 23N.	156 27W.	35
Point Barrow (ocean), Alaska	71 23N.	156 27W.	35
Point San Quentin, San Francisco Bay, Calif.	37 57N.	122 29W.	14
Port Angeles, Wash.	48 08N.	123 26W.	22
Port Hueneme, Calif.	34 09N.	119 12W.	9
Port Moller, Alaska	55 59N.	160 34W.	35
Port Townsend (Fort Worden), Wash.	48 08N.	122 46W.	22
Puerto Armuelles, Panama	8 16N.	82 52W.	52
Puerto Montt, Chile	41 29S.	72 58W.	45,60
Puerto Peñasco, Mexico	31 19N.	113 35W.	55
Prisoners Point, San Joaquin River, Calif.	38 04N.	121 33W.	15
Punta Arenas, Magellan Strait, Chile	53 09S.	70 54W.	45,60
Puntarenas, Costa Rica	9 58N.	84 50W.	52,61
Raymond, Willapa Bay, Wash.	46 41N.	123 45W.	21,57
Rio Vista, Sacramento River, Calif.	38 09N.	121 42W.	15
Salina Cruz, Mexico	16 10N.	95 12W.	54
San Diego, Calif.	32 42N.	117 14W.	6,56
San Fernando, Luzon Island, Philippine Islands	16 37N.	120 18E.	42
San Francisco (Fort Point), Calif.	37 48N.	122 28W.	11,56
San Francisco (Hunters Point), Calif.	37 44N.	122 22W.	13
San José, Guatemala	13 55N.	90 50W.	54,51
San Juan del Sur, Nicaragua	11 15N.	85 53W.	53,61
Santa Barbara, Calif.	34 25N.	119 41W.	10
Santa Monica, Calif.	34 00N.	118 30W.	9,56
Sausalito, Calif.	37 51N.	122 29W.	14
Seattle (Duwamish River), Wash.	47 32N.	122 19W.	24
Seattle (Elliott Bay), Wash.	47 36N.	122 20W.	23,57
Seward, Alaska	60 06N.	149 27W.	31,59
Sitka, Alaska	57 03N.	135 20W.	27,58
Skagway, Alaska	59 27N.	135 19W.	29,58
Skamokawa, Columbia River, Wash.	46 16N.	123 27W.	20
Sweeper Cove, Adak Island, Alaska	51 51N.	176 39W.	33,59
Tacloban, Leyte Island, Philippine Islands	11 15N.	125 00E.	43
Tacoma, Wash.	47 17N.	122 25W.	24
Taft, Siletz Bay, Ore.	44 56N.	124 01W.	18
Talara, Peru	4 35S.	81 17W.	50,60
Taleahuano, Chile	36 41S.	73 06W.	46
Three Mile Slough, San Joaquin River, Calif.	38 05N.	121 41W.	15
Tokeland, Willapa Bay, Wash.	46 42N.	123 58W.	20,57
Truk Islands (Moen Island), Caroline Islands	7 27N.	151 51E.	40
Tumaco, Colombia	1 50N.	78 44W.	51
Valparaiso, Chile	33 02S.	71 38W.	46,60
Wake Island	19 17N.	166 37E.	39
Wauna, Columbia River, Ore.	46 10N.	123 24W.	19
Womens Bay, Kodiak Island, Alaska	57 43N.	152 31W.	32
Yakutat, Alaska	59 33N.	139 44W.	30,58
Yap Island, Caroline Islands	9 30N.	138 08E.	41
Yerba Buena Island, San Francisco Bay, Calif.	37 49N.	122 22W.	12

Table 1. Density of Sea Water
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
SAN DIEGO, CALIF.															
LA JOLLA, CALIF.															
1922	1.0240	1.0240	1.0241	1.0244	1.0247	1.0249	1.0251	1.0252	1.0251	1.0248	1.0248	1.0246	1.0246	1.0258	1.0228
1923	246	246	248	248	249	251	251	255	256	253	250	250	248	261	240
1924	248	249	249	249	249	251	251	253	251	252	250	250	247	261	237
1925	248	249	251	251	253	253	254	251	249	246	247	246	246	258	240
Mean Salinity	33.2	33.2	33.3	33.5	33.7	33.8	34.1	34.0	33.8	33.5	33.6	33.6	33.3	33.6	
Max.	1.0252	1.0254	1.0255	1.0254	1.0258	1.0258	1.0261	1.0261	1.0261	1.0256	1.0257	1.0253			
Mean Max.	1.0251	1.0251	1.0252	1.0252	1.0255	1.0255	1.0255	1.0258	1.0258	1.0256	1.0252	1.0253	1.0252		
Mean Min.	1.0239	1.0242	1.0241	1.0242	1.0245	1.0248	1.0248	1.0249	1.0249	1.0247	1.0245	1.0245	1.0242		
Min.	1.0228	1.0233	1.0236	1.0231	1.0240	1.0247	1.0247	1.0248	1.0248	1.0246	1.0244	1.0244	1.0237	1.0228	

Table 1. Density of Sea Water - *Continued*

Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
LOS ANGELES (Outer Harbor), CALIF. - <i>Continued</i>															
1930	1.0247	1.0249	1.0249	1.0251	1.0251	1.0252	1.0252	1.0252	1.0251	1.0251	1.0252	1.0251	1.0251	1.0255	1.0241
1931	252	250	253	252	252	252	252	250	251	250	251	248	251	257	240
1932	247	244	249	251	250	250	249	249	248	248	250	248	250	255*	228*
1933	247	247	249	249	250	251	251	250	250	251	250	250	250	256	239
1934	243	247	248	249	249	249	250	248	249	248	247	245	248	253	201
1935	245	246	246	247	248	249	249	249	248	248	248	248	248	254	242
1936	248	247	247	249	250	251	251	249	249	250	248	248	249	255	242
1937	246	241	246	246	248	250	249	251	250	249	251	250	248	257	223
1938	249	246	238	248	251	252	252	252	250	249	249	244	248	256	186
1939	247	248	248	249	251	251	252	252	252	251	251	252	251	257	242
1940	249	247	250	250	250	251	251	250	250	250	250	248	245	249	259
1941	244	237	231	245	247	247	249	247	250	250	249	248	247	253*	168*
1942	247	248	250	250	253	252	253	253	251	251	253	249	251	259	237
1943	240	244	246	251	252	252	253	252	252	251	251	251	248	249	190
1944	247	240	242	249	250	250	252	251	251	251	249	247	248	255	171
1945	247	248	247	251	252	252	251	251	250	250	249	246	250	256	238
1946	247	249	249	251	250	250	251	251	251	250	244	245	249	254	228
1947	246	249	249	250	250	250	251	250	250	250	249	250	256	237	
1948	248	248	249	249	250	251	250	250	250	249	250	248	249	255	245
1949	247	248	249	250	251	251	251	251	251	253	253	251	250	256	245
1950	249	249	252	253	253	255	256	255	254	254	253	252	253	260	242
1951	250	249	250	252	253	252	250	251	251	251	250	250	251	256	245
1952	236	249	244	249	251	251	251	251	250	249	247	245	248	260	169
1953	245	247	251	252	253	255	255	254	252	252	251	252	250	251	242

Mean Density Salinity	1.0247 33.3	1.0246 33.2	1.0247 33.3	1.0249 33.6	1.0250 33.7	1.0251 33.8	1.0251 33.8	1.0250 33.7	1.0249 33.7	1.0248 33.6	1.0249 33.6	
Max. Mean Max. Mean Min. Min.	1.0255 1.0251 1.0251 1.0251 1.0238 1.0236 1.0169	1.0257 1.0251 1.0256 1.0253 1.0247 1.0245 1.0171	1.0256 1.0253 1.0258 1.0254 1.0248 1.0247 1.0242	1.0258 1.0254 1.0260 1.0254 1.0248 1.0248 1.0244	1.0258 1.0254 1.0261 1.0254 1.0247 1.0246 1.0243	1.0257 1.0253 1.0260 1.0253 1.0247 1.0246 1.0243	1.0257 1.0253 1.0260 1.0253 1.0247 1.0246 1.0242	1.0256 1.0253 1.0260 1.0253 1.0247 1.0246 1.0233				
1.0260 1.0168												
SANTA MONICA, CALIF.												
1946 1947 1948 1949	24.8 24.7 24.7 24.7	24.8 24.7 24.6 24.7	25.1 24.7 24.7 24.7	25.2 24.9 24.9 24.9	25.0 25.1 25.1 25.1	25.0 25.0 25.3 25.3	25.1 25.1 24.9 24.9	24.8 24.8 25.1 25.1	24.9 24.8 24.7 25.1	24.8 24.7 24.7 25.0	1.0248 1.0249 1.0251 1.0252	
1950 1951 1952 1953	24.7 25.0 24.6 24.5	24.5 24.8 24.8 24.7	24.9 25.0 24.6 24.7	25.2 25.1 24.9 24.8	25.3 25.2 25.2 25.0	25.2 25.2 25.2 24.9	25.1 25.1 25.2 24.9	25.1 25.2 25.0 24.8	25.0 25.0 25.0 24.7	25.0 25.0 24.9 24.8	1.0248 1.0249 1.0251 1.0252	
Mean Density Salinity	1.0247 33.3	1.0248 33.3	1.0250 33.5	1.0251 33.7	1.0252 33.8	1.0251 34.0	1.0250 33.8	1.0251 33.7	1.0249 33.7	1.0248 33.6	1.0249 33.6	
Max. Mean Max. Mean Min. Min.	1.0255 1.0252 1.0252 1.0252 1.0242 1.0240 1.0230 1.0227	1.0256 1.0255 1.0256 1.0255 1.0243 1.0244 1.0234 1.0228	1.0263 1.0255 1.0263 1.0255 1.0246 1.0246 1.0244 1.0244	1.0256 1.0255 1.0262 1.0255 1.0246 1.0246 1.0244 1.0244	1.0258 1.0257 1.0262 1.0257 1.0246 1.0246 1.0243 1.0243	1.0273 1.0258 1.0260 1.0258 1.0246 1.0246 1.0243 1.0243	1.0260 1.0255 1.0261 1.0255 1.0246 1.0245 1.0242 1.0242	1.0256 1.0253 1.0263 1.0253 1.0246 1.0244 1.0236 1.0228				
1.0273 1.0227												
PORT HUENEME, CALIF.												
1919 -1953												
Mean Salinity	33.46	33.39	33.32	33.59	33.60	33.62	33.65	33.59	33.57	33.57	33.54	

*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.	
SANTA BARBARA, CALIF.																
1930	---	---	1.0251	1.0253	1.0253	1.0254	1.0254	1.0252	1.0251	1.0252	1.0252	1.0252	---	1.0262*	1.0244*	
1931	1.0251	1.0253	253	254	253	254	255	255	253	252	249	1.0253	260	221		
1932	250	247	251	252	254	252	255	---	---	---	---	---	260*	216*		
Mean																
Density	1.0250	1.0250	1.0252	1.0253	1.0253	1.0254	1.0254	1.0252	1.0253	1.0252	1.0251	1.0252	1.0252	1.0252	34.0	
Mean	33.7	33.7	34.0	34.1	34.1	34.2	34.2	34.2	34.1	34.0	34.0	34.0	34.0	34.0		
Max.	1.0256	1.0258	1.0258	1.0259	1.0262	1.0260	1.0259	1.0259	1.0257	1.0257	1.0258	1.0258	1.0258	1.0258		
Mean Max.	1.0255	1.0256	1.0257	1.0257	1.0258	1.0259	1.0257	1.0258	1.0256	1.0257	1.0256	1.0256	1.0256	1.0256		
Mean Min.	1.0244	1.0232	1.0247	1.0247	1.0249	1.0249	1.0251	1.0251	1.0250	1.0248	1.0247	1.0247	1.0244	1.0234		
Min.	1.0239	1.0216	1.0246	1.0246	1.0248	1.0248	1.0249	1.0249	1.0250	1.0247	1.0244	1.0244	1.0221	1.0221		
AVILA, CALIF.																
1945	---	---	1.0250	1.0252	1.0253	1.0253	1.0257	1.0256	1.0258	1.0256	1.0253	1.0253	1.0251	---	1.0263*	1.0248*
1946	1.0251	1.0251	248	249	250	251	253	254	253	252	250	249	247	1.0252	259	240
1947	251	251	252	250	250	252	250	252	255	252	250	252	252	251	266	244
1948	248	248	249	249	252	251	254	254	251	250	250	249	249	251	260	246
1949	251	248	249	249	252	251	252	251	250	252	250	250	250	250	259	239
Mean																
Density	1.0248	1.0248	1.0250	1.0252	1.0253	1.0253	1.0253	1.0253	1.0253	1.0251	1.0249	1.0249	1.0251	1.0251	33.8	
Mean	33.5	33.5	33.7	34.0	34.1	34.1	34.1	34.1	34.1	33.8	33.6	33.6	33.6	33.6		
Max.	1.0256	1.0255	1.0256	1.0257	1.0263	1.0261	1.0262	1.0268	1.0261	1.0266	1.0258	1.0258	1.0258	1.0258		
Mean Max.	1.0252	1.0253	1.0254	1.0254	1.0256	1.0258	1.0258	1.0257	1.0258	1.0256	1.0256	1.0253	1.0253	1.0253		
Mean Min.	1.0242	1.0244	1.0246	1.0246	1.0248	1.0249	1.0249	1.0249	1.0248	1.0247	1.0246	1.0245	1.0245	1.0245		
Min.	1.0236	1.0237	1.0245	1.0245	1.0246	1.0246	1.0244	1.0244	1.0244	1.0243	1.0242	1.0243	1.0243	1.0243	1.0236	

1919 -1953		PACIFIC GROVE, CALIF.										SAN FRANCISCO (Fort Point), CALIF.														
Mean Salinity	33.34	33.22	33.37	33.59	33.69	33.71	33.69	33.62	33.53	33.45	33.37	33.48	1922	1.0218	1.0204	1.0180	1.0173	1.0170	1.0207	1.0224	1.0231	1.0227	1.0224	1.0236	1.024	
1925 -1942	33.12	32.94	33.02	33.20	33.45	33.68	33.76	33.76	33.66	33.62	33.49	33.40	33.43	1923	208	204	198	201	204	219	232	238	234	232	231	218
Mean Salinity	33.12	32.94	33.02	33.20	33.45	33.68	33.76	33.76	33.66	33.62	33.49	33.40	33.43	1924	225	223	229	232	238	245	247	249	241	241	230	237
1925	195	196	186	187	200	203	223	232	243	242	237	236	229	1925	225	228	228	228	229	236	239	239	239	239	231	
1926	196	200	183	187	187	187	196	214	230	238	238	238	229	1926	228	228	228	228	229	236	242	242	242	242	220	
1927	178	168	179	187	180	211	222	233	240	241	241	241	229	1927	219	219	219	219	219	229	235	235	235	235	213	
1928	220	208	206	180	218	222	221	224	236	241	241	241	225	1928	220	220	220	220	220	229	235	235	235	235	220	
1929	224	217	218	217	218	222	221	224	236	241	241	241	225	1929	217	217	217	217	217	225	231	231	231	231	208	
1930	215	217	191	201	213	227	237	242	241	242	242	241	225	1930	215	215	215	215	215	229	235	235	235	235	215	
1931	229	228	224	229	235	241	247	251	250	252	251	251	224	1931	229	229	229	229	229	235	235	235	235	235	215	
1932	209	199	210	210	202	203	216	232	237	237	237	237	222	1932	209	209	209	209	209	222	222	222	222	222	208	
1933	231	222	220	210	218	218	232	239	242	242	242	242	225	1933	231	231	231	231	231	237	240	240	240	240	230	
1934	213	222	212	217	227	235	241	246	251	251	246	246	225	1934	213	213	213	213	213	229	234	234	234	234	225	
1935	211	201	174	174	185	217	232	237	239	239	239	239	224	1935	211	211	211	211	211	240	241	241	241	241	214	
1936	211	197	170	187	187	200	224	235	238	236	236	236	224	1936	211	211	211	211	211	241	241	241	241	241	214	
1937	227	201	173	159	181	196	222	234	239	236	236	236	223	1937	227	227	227	227	227	235	235	235	235	235	214	
1938	200	150	131	147	157	167	203	224	230	231	231	231	224	1938	200	200	200	200	200	228	228	228	228	228	208	
1939	223	223	222	213	225	234	242	245	248	244	244	244	236	1939	223	223	223	223	223	236	236	236	236	236	200	

*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
SAN FRANCISCO (Fort Point), CALIF. - Continued															
1940	1.0203	1.0182	1.0134	1.0137	1.0188	1.0209	1.0226	1.0237	1.0242	1.0240	1.0231	1.0223	1.0204	1.0246	1.0043
1941	167	143	126	149	163	187	214	224	232	234	218	213	189	239	051
1942	190	138	189	174	187	174	223	229	—	—	—	—	—	238*	094*
1943	204	166	172	184	198	215	233	236	245	238	235	234	213	250	096
1944	231	222	214	228	219	223	235	244	246	243	234	228	231	252	169
1945	225	205	209	217	213	218	231	239	242	240	228	210	223	247	138
1946	186	213	214	—	—	220	235	237	237	235	—	—	—	255*	116*
1947	219	215	209	209	230	229	240	247	246	246	231	—	—	262*	174*
1948	—	—	—	198	204	193	196	227	231	238	233	232	231	—	258*
1949	—	—	227	198	204	215	224	238	242	240	238	235	232	—	163*
1950	227	205	213	206	217	215	230	232	237	237	208	166	216	251	099
1951	192	170	191	209	208	218	229	230	231	231	231	214	213	240	100
1952	182	165	175	174	169	183	207	222	227	230	231	221	199	239	086
1953	169	203	224	222	215	214	226	237	239	236	231	231	221	250	106
Mean Density	1.0211	1.0198	1.0194	1.0194	1.0202	1.0210	1.0228	1.0236	1.0240	1.0239	1.0233	1.0224	1.0217		
Mean Salinity	28.6	26.9	26.4	26.4	27.5	28.5	30.8	31.9	32.4	32.3	31.5	30.3	29.4		
Max.	1.0241	1.0236	1.0245	1.0245	1.0251	1.0252	1.0255	1.0255	1.0258	1.0262	1.0253	1.0246	1.0262		
Mean Max.	1.0228	1.0223	1.0225	1.0225	1.0225	1.0229	1.0239	1.0243	1.0244	1.0244	1.0240	1.0236			
Mean Min.	1.0183	1.0163	1.0154	1.0158	1.0174	1.0184	1.0214	1.0229	1.0236	1.0234	1.0223	1.0202			
Min.	1.0094	1.0076	1.0043	1.0075	1.0107	1.0111	1.0179	1.0204	1.0215	1.0225	1.0137	1.0099	1.0043		
1937	1.0215	1.0187	1.0143	1.0139	—	—	1.0214	1.0227	1.0235	1.0235	—	—	—	1.0239*	1.0079*

ALAMEDA, CALIF.

SAN FRANCISCO (Hunters Point). CALIF.

**Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.	
SAN FRANCISCO (Hunters Point), CALIF. - Continued																
Mean Density Salinity																
Mean	1.0138	1.0155	1.0173	1.0172	1.0175	1.0186	1.0210	1.0224	1.0227	1.0225	1.0216	1.0192	1.0191			
Density	19.1	21.3	23.7	23.5	23.9	25.4	25.4	28.5	30.3	30.7	30.4	29.3	26.1			
Max.	1.0184	1.0200	1.0209	1.0203	1.0204	1.0216	1.0233	1.0240	1.0237	1.0225	1.0219		1.0240			
Mean Max.	1.0175	1.0179	1.0193	1.0188	1.0192	1.0202	1.0220	1.0230	1.0234	1.0231	1.0223	1.0212				
Mean Min.	1.0087	1.0125	1.0150	1.0148	1.0155	1.0161	1.0191	1.0214	1.0223	1.0218	1.0206	1.0161				
Min.	1.0069	1.0075	1.0113	1.0121	1.0093	1.0095	1.0142	1.0196	1.0216	1.0213	1.0195	1.0119	1.0069			
DUMBARTON BRIDGE, SAN FRANCISCO BAY, CALIF.																
1937	1.0236	1.0195	1.0146	1.0114	1.0144	1.0164	1.0183	1.0204	1.0218	1.0222	---	---	---	1.0261*1.0091*		
—	128	103	098	112	127	137	152	175	195	204	1.0207	1.0193	1.0153	211	076	
SAUSALITO, CALIF.																
1937	1.0224	1.0224	1.0224	1.0208	1.0161	1.0157	1.0194	1.0198	1.0200	1.0200	---	---	---	1.0238*1.0122*		
—	1952	121	118	134	145	144	161	187	212	223	222	1.0220	1.0183	1.0172	240	049
POINT SAN QUENTIN, SAN FRANCISCO BAY, CALIF.																
1937	1.0174	1.0102	1.0078	1.0069	1.0084	1.0113	1.0167	1.0203	1.0201	1.0198	1.0194	---	---	1.0220*1.0004*		
MARE ISLAND STRAIT, CALIF.																
1937	1.0108	1.0028	1.0023	1.0012	1.0017	1.0029	1.0092	1.0140	1.0159	1.0147	---	---	---	1.0165*0.9993*		
BENICIA, CARQUINEZ STRAIT, CALIF.																
1937	1.0074	1.0012	1.0001	1.0003	1.0005	1.0010	1.0025	1.0084	1.0125	1.0104	1.0101	---	---	1.0135*0.9995*		
—	1952	007	0.9998	0.9995	0.9997	0.9996	0.9998	030	078	090	098	097	1.0048	1.0036	121	0.9985

PITTSBURG, NEW YORK SLOUGH, CALIF.

1952	0.9992	0.9992	0.9992	0.9991	0.9993	0.9995	0.9993	0.9997	0.9998	0.9995	0.9995	0.9992	0.9994	0.9987
THREE MILE SLOUGH, SAN JOAQUIN RIVER, CALIF.														
1938	---	---	---	---	---	0.9999	0.9999	0.9999	1.0000	1.0012	1.0043	1.0037	1.0011	0.9995
1939	0.9996	0.9995	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0012	1.0043	1.0037	1.0011	0.9995
1940	0.9993	0.9994	0.9995	0.9994	0.9995	0.9999	0.9999	0.9999	---	---	---	---	---	---

PRISONERS POINT, SAN JOAQUIN RIVER, CALIF.

1939	---	---	---	---	---	0.9994	0.9994	0.9999	0.9994	---	---	1.0059	1.0014	1.0005	1.0000	0.9997
1940	0.9993	0.9992	0.9991	0.9991	0.9991	0.9999	0.9999	0.9999	0.9994	---	---	---	---	---	---	---

COLLINSVILLE, SACRAMENTO RIVER, CALIF.

1937	0.9999	0.9995	0.9997	0.9999	1.0001	0.9998	1.0005	1.0033	1.0050	1.0021	1.0000	0.9994	1.0008	1.0070	0.9992
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RIO VISTA, SACRAMENTO RIVER, CALIF.

1938	---	---	0.9995	0.9995	0.9995	0.9995	0.9995	0.9994	0.9995	0.9993	0.9993	0.9992	0.9991	---	1.0000**0.9988*	
1939	0.9991	0.9990	0.9991	0.9992	0.9991	0.9991	0.9991	0.9991	1.0000	1.0000	1.0030	1.0020	0.9998	0.9990	0.9998	1.0049 0.9986
1940	0.9990	0.9991	0.9993	0.9993	0.9992	0.9992	0.9991	0.9991	---	---	---	---	---	---	---	0.9998*0.9988*
Mean Density	0.9990	0.9990	0.9993	0.9993	0.9993	0.9992	0.9992	0.9998	1.0012	1.0008	0.9996	0.9992	0.9990	0.9996	0.9996	
Salinity	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0	0.8	2.6	2.1	0.6	0.0	0.0	0.6	1.0049
Max.	0.9993	0.9993	1.0000	0.9998	0.9998	0.9999	1.0001	1.0015	1.0049	1.0037	1.0005	0.9995	0.9993			
Mean Max.	0.9992	0.9993	0.9997	0.9996	0.9996	0.9996	0.9998	1.0006	1.0024	1.0018	1.0001	0.9996	0.9992			
Mean Min.	0.9989	0.9990	0.9990	0.9990	0.9988	0.9988	0.9989	0.9991	1.0001	0.9998	0.9991	0.9988	0.9988			
Min.	0.9988	0.9990	0.9988	0.9989	0.9986	0.9986	0.9988	0.9990	0.9992	0.9990	0.9990	0.9988	0.9988			

*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
NEW HOPE BRIDGE, MOKELUMNE RIVER, CALIF.															
1938	---	---	0.9995	0.9996	1.0006	0.9995	0.9994	0.9992	0.9994	0.9994	0.9993	0.9993	---	1.0012*	0.9985*
1939	0.9993	0.9994	0.9995	0.9997	0.9996	0.9998	1.0003	1.0004	0.9996	0.9994	0.9993	0.9993	0.9996	1.0009	0.9984
1940	0.9993	0.9992	0.9994	0.9995	0.9995	1.0001	---	---	---	---	---	---	---	1.0010*	0.9990*
Mean	0.9993	0.9993	0.9994	0.9996	0.9996	1.0002	0.9999	0.9994	0.9994	0.9993	0.9993	0.9993	0.9996	0.9996	0.9996
Density	0.2	0.2	0.3	0.6	0.6	1.3	0.9	0.9	0.3	0.3	0.2	0.2	0.2	0.2	0.6
Salinity															
Max.	0.9995	0.9995	0.9997	1.0000	1.0007	1.0012	1.0006	1.0008	1.0006	1.0004	0.9996	0.9995	1.0012		
Mean Max.	0.9995	0.9994	0.9997	1.0000	1.0002	1.0010	1.0003	1.0003	1.0000	1.0001	0.9995	0.9994			
Mean Min.	0.9992	0.9991	0.9992	0.9992	0.9993	0.9995	0.9990	0.9996	0.9987	0.9992	0.9991	0.9992			
Min.	0.9991	0.9990	0.9991	0.9991	0.9993	0.9992	0.9985	0.9991	0.9984	0.9991	0.9991	0.9991	0.9984	0.9984	
BLUNTS REEF LIGHTSHIP															
1922															
-1941															
Mean	33.07	32.99	33.03	33.11	33.49	33.69	33.84	33.77	33.64	33.54	33.28	33.19	33.39		
Salinity															
CRESCENT CITY, CALIF.															
1934	1.0192	1.0222	1.0217	1.0230	1.0229	1.0243	1.0239	1.0240	1.0238	1.0210	1.0209	1.0226	1.0283	1.0127	
1935	193	200	191	199	223	234	239	236	236	232	224	219	270	094	
1936	189	195	218	214	219	224	231	233	244	246	245	238	225	251	113
1937	226	227	215	175	231	208	235	243	243	240	194	211	221	251	097
1938	212	168	175	218	230	221	239	244	247	243	234	228	222	261	102
1939	237	224	201	226	238	241	243	243	240	243	226	234	252	096	
1940	203	183	193	225	225	245	238	242	239	239	229	224	269	117	
1941	189	201	203	199	201	214	215	227	232	240	230	194	212	252	105
1942	210	211	232	230	217	220	233	240	236	242	212	184	222	254	097
1943	189	192	211	236	229	238	236	242	246	233	239	224	258	104	
1944	231	227	235	232	227	235	242	243	245	223	224	234	256	169	

**Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.	
NEWPORT, YAQUINA BAY, ORE.																
1933	---	---	1.0159	1.0172	1.0212	1.0243	1.0244	1.0240	1.0226	---	---	---	1.0258*	0.9998*		
1934	1.0172	1.0213	1.0214	---	---	---	---	---	---	---	---	---	1.0239*	1.0039*		
TAFT, SILETZ BAY, ORE.																
1933	---	---	---	1.0143	---	---	1.0104	1.0221	1.0219	1.0213	1.0177	1.0149	1.0031	---	1.0252*	0.9989*
1934	1.0034	1.0151	1.0087	1.0143	---	---	---	---	---	---	---	---	---	1.0245*	0.9989*	
GARIBALDI, TILLAMOOK BAY, ORE.																
1933	---	---	1.0131	1.0121	1.0119	1.0168	1.0224	1.0229	1.0173	1.0123	1.0113	---	---	1.0255*	1.0006*	
1934	---	1.0147	1.0131	1.0121	---	---	---	---	---	---	---	---	---	1.0248*	1.0001*	
BRIGHTON, NEHALEM RIVER, ORE.																
1933	---	---	1.0139	1.0106	1.0117	1.0089	1.0099	1.0191	1.0202	1.0200	1.0171	1.0155	1.0043	---	1.0282*	0.9991*
1934	1.0041	1.0139	1.0106	1.0117	---	---	---	---	---	---	---	---	---	1.0240*	0.9985*	
ASTORIA (Tongue Point), ORE.																
1925	0.9991	0.9987	0.9991	0.9993	0.9996	0.9997	0.9999	0.9995	0.9999	1.0008	1.0018	1.0007	0.9998	1.0073	0.9984	
1926	1.0021	1.0005	1.0000	1.0005	0.9999	0.9999	0.9999	1.0005	1.0006	1.0008	1.0002	0.9996	1.0004	1.0062	0.9991	
1927	1.0004	0.9997	0.9998	0.9998	0.9995	0.9995	0.9997	0.9995	0.9993	0.9995	0.9996	0.9993	0.9991	0.9996	1.0044	0.9984
1928	0.9996	0.9996	0.9996	0.9994	0.9997	0.9996	0.9996	0.9993	0.9993	0.9999	1.0001	1.0014	1.0022	0.9999	1.6072	0.9986
1929	1.0007	1.0017	0.9995	0.9995	0.9994	0.9996	0.9998	1.0003	1.0000	1.0016	1.0027	1.0016	1.0005	1.0088	0.9998	
1930	1.0047	0.9992	1.0004	0.9998	0.9996	0.9997	0.9996	1.0001	1.0007	1.0018	1.0033	1.0042	1.0011	1.0095	0.9987	
1931	1.0026	1.0020	1.0001	0.9998	0.9996	0.9995	0.9997	1.0005	1.0009	1.0021	1.0007	1.0022	1.0008	1.0102	0.9987	
1932	0.9998	1.0008	0.9993	0.9993	0.9995	0.9998	0.9996	1.0000	1.0003	1.0011	0.9995	1.0003	0.9999	1.0062	0.9982	
1933	0.9994	0.9996	0.9994	0.9994	0.9993	0.9994	0.9995	0.9995	0.9999	0.9996	0.9999	0.9991	0.9990	0.9995	1.0035	0.9984
1934	0.9989	0.9994	0.9992	0.9991	0.9993	0.9993	0.9995	0.9992	0.9995	1.0001	1.0012	1.0006	0.9997	1.0067	0.9986	

1935	1.0001	0.9999	0.9999	0.9997	0.9999	0.9999	0.9998	1.0007	1.0020	1.0036	1.0051	1.0009	1.0095	0.9990
1936	0.9993	1.0025	0.9996	0.9998	0.9997	0.9997	0.9998	1.0005	1.0013	1.0037	1.0050	1.0037	1.0012	0.9984
1937	1.0039	1.0008	1.0004	0.9997	0.9996	0.9993	0.9992	0.9999	1.0010	1.0028	1.0003	0.9996	1.0005	1.0095
1938	0.9994	1.0004	0.9998	0.9995	0.9996	0.9997	0.9999	1.0000	1.0013	1.0021	1.0009	1.0004	1.0059	0.9988
1939	1.0000	1.0000	0.9996	0.9989	0.9991	0.9991	0.9991	0.9995	1.0007	1.0021	1.0036	1.0011	1.0002	1.0080
1940	1.0024	0.9998	0.9994	0.9991	0.9991	0.9992	0.9992	1.0001	1.0009	1.0023	1.0009	1.0021	1.0004	1.0096
1941	1.0017	1.0022	1.0004	0.9994	0.9993	0.9990	0.9996	1.0000	1.0000	1.0002	1.0005	0.9994	1.0002	1.0071
1942	1.0010	1.0000	0.9994	0.9991	0.9991	0.9992	0.9991	0.9997	1.0002	1.0014	0.9994	0.9991	0.9997	1.0050
1943	0.9992	0.9993	0.9999	0.9993	0.9991	0.9994	0.9994	0.9992	1.0010	1.0018	1.0014	1.0008	1.0000	1.0082
1944	1.0006	1.0002	1.0000	1.0001	0.9992	0.9992	0.9995	1.0000	1.0010	1.0028	1.0033	1.0041	1.0008	1.0099
1945	1.0006	0.9997	0.9999	0.9991	0.9988	0.9991	0.9991	0.9994	1.0002	1.0024	1.0015	1.0015	1.0001	1.0082
1946	1.0014	1.0000	---	---	---	---	---	---	1.0016	1.0017	1.0008	0.9999	---	1.0047*
1947	1.0006	0.9994	0.9998	0.9995	0.9998	0.9998	0.9998	1.0000	1.0004	1.0010	1.0004	0.9994	1.0000	1.0050
1948	0.9998	0.9999	0.9994	0.9995	0.9994	0.9997	0.9999	0.9999	1.0006	1.0006	1.0003	0.9999	1.0000	1.0072
1949	1.0010	0.9997	0.9994	0.9994	0.9992	0.9994	0.9995	0.9999	1.0009	1.0008	1.0017	1.0001	1.0001	1.0046
1950	0.9996	0.9994	0.9992	0.9992	0.9994	0.9996	0.9996	0.9998	1.0001	1.0010	0.9994	0.9994	0.9996	1.0043
1951	0.9992	0.9994	0.9993	0.9994	0.9994	0.9996	0.9998	1.0000	1.0003	1.0005	1.0013	1.0002	0.9999	1.0055
1952	1.0004	0.9997	0.9997	0.9995	0.9996	0.9997	0.9999	1.0002	1.0009	1.0026	1.0036	1.0027	1.0007	1.0092
1953	1.0002	0.9993	0.9996	0.9996	0.9993	0.9995	0.9996	0.9998	1.0002	1.0008	1.0016	1.0016	0.9999	1.0001
Mean Density	1.0006	1.0001	0.9997	0.9995	0.9994	0.9995	0.9996	0.9999	1.0006	1.0014	1.0013	1.0010	1.0002	1.0044
Mean Salinity	1.9	1.2	0.7	0.4	0.3	0.4	0.6	0.9	1.9	2.9	2.8	2.4	1.3	1.0102
Max.	1.0102	1.0076	1.0048	1.0029	1.0009	1.0004	1.0014	1.0055	1.0063	1.0099	1.0097	1.0096	1.0002	1.0102
Mean Max.	1.0039	1.0030	1.0017	1.0005	0.9999	1.0000	1.0001	1.0013	1.0033	1.0052	1.0049	1.0051	1.0000	1.0051
Mean Min.	0.9990	0.9989	0.9990	0.9990	0.9990	0.9991	0.9992	0.9993	0.9994	0.9994	0.9992	0.9991	0.9992	0.9982
Min.	0.9986	0.9984	0.9986	0.9982	0.9985	0.9985	0.9987	0.9987	0.9988	0.9982	0.9984	0.9984	0.9982	0.9982

WAUNA, COLUMBIA RIVER, ORE.

1940	---	---	---	---	---	---	---	---	---	0.9990	0.9990	---	0.9995*	0.9988*
1941	0.9989	0.9990	0.9990	0.9993	0.9992	0.9994	0.9992	0.9995	0.9995	0.9992	0.9990	0.9990	0.9992	0.9988
1942	0.9991	0.9990	0.9990	0.9992	0.9994	0.9997	0.9997	---	---	---	---	---	1.0000*	0.9988*

*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
HARRINGTON POINT, COLUMBIA RIVER, WASH.															
1940	—	—	—	—	—	—	—	—	—	0.9994	0.9993	0.9990	0.9991	—	0.9996*0.9989*
1941	0.9991	0.9992	0.9993	0.9995	0.9997	0.9998	0.9995	0.9995	0.9993	0.9991	0.9990	0.9991	0.9993	1.0001	0.9987
1942	0.9991	0.9990	0.9989	0.9989	0.9992	0.9994	0.9994	0.9997	1.0001	—	—	—	—	1.0005*	0.9988*
SKAMOKAWA, COLUMBIA RIVER, WASH.															
1940	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1941	0.9989	0.9989	0.9996	0.9991	0.9993	0.9990	0.9992	0.9989	0.9989	0.9990	0.9987	0.9987	0.9990	0.9999	0.9984
1942	0.9988	0.9987	0.9988	0.9988	0.9990	0.9990	0.9992	0.9991	—	—	—	—	—	1.0000*	0.9984*
CATHLAMET, COLUMBIA RIVER, WASH.															
1940	—	—	—	—	—	—	—	—	—	0.9992	0.9991	0.9991	0.9991	—	0.9995*0.9989*
1941	0.9990	0.9993	0.9995	0.9996	0.9996	0.9995	0.9996	0.9997	0.9994	0.9995	0.9993	0.9994	0.9992	0.9994	1.0000
1942	0.9992	0.9996	0.9996	0.9995	0.9995	0.9995	0.9995	0.9996	0.9999	—	—	—	—	1.0002*	0.9991*
TOKELAND, WILLAPA BAY, WASH.															
1935	1.0131	1.0163	1.0146	1.0166	1.0193	1.0181	1.0203	1.0216	1.0213	1.0200	1.0190	1.0185	1.0237	1.0040	—
1936	126	166	157	160	148	135	175	208	217	218	221	167	175	236	043
1937	189	167	158	153	166	173	201	204	213	201	146	157	177	231	056
1938	136	157	153	131	177	199	205	217	212	210	179	178	180	234	007
1939	150	136	154	174	183	182	183	219	213	216	208	—	—	233*	060*
Mean Density	1.0146	1.0158	1.0154	1.0157	1.0173	1.0174	1.0193	1.0213	1.0214	1.0212	1.0191	1.0173	1.0180	—	—
Salinity	20.1	21.7	21.2	21.6	23.7	23.8	26.3	28.9	29.0	28.8	26.0	23.7	24.6	—	—
Max.	1.0237	1.0209	1.0215	1.0201	1.0223	1.0234	1.0231	1.0233	1.0236	1.0232	1.0235	1.0210	1.0237	—	—
Mean Max.	1.0205	1.0200	1.0203	1.0192	1.0209	1.0214	1.0223	1.0227	1.0230	1.0227	1.0219	1.0203	—	—	—
Mean Min.	1.0084	1.0074	1.0063	1.0105	1.0138	1.0137	1.0155	1.0197	1.0197	1.0192	1.0151	1.0112	—	—	—
Min.	1.0041	1.0043	1.0011	1.0007	1.0113	1.0101	1.0117	1.0187	1.0189	1.0187	1.0065	1.0056	1.0007	—	—

RAYMOND, WILLAPA BAY WASH.

1935	---	---	1.0010	1.0045	1.0051	1.0070	1.0110	1.0143	1.0148	1.0117	1.0091	---
1936	1.0008	1.0080	024	059	051	040	068	---	---	105	064	---
1937	052	029	041	017	045	---	---	---	---	048	020	---
1938	024	035	036	026	053	101	129	159	166	144	043	050
1939	036	028	030	069	098	071	097	155	163	150	115	057
1940	054	020	025	027	039	112	152	147	148	107	064	053
1941	054	072	085	088	080	084	124	152	084	095	064	039
1942	058	047	048	059	054	---	---	---	---	---	---	---
Mean Density	1.0041	1.0044	1.0037	1.0049	1.0059	1.0080	1.0113	1.0151	1.0141	1.0129	1.0079	1.0053
Salinity	6.4	6.8	5.9	7.5	8.8	11.5	15.8	20.8	19.5	17.9	11.4	8.0

Max.	1.0139	1.0139	1.0135	1.0135	1.0145	1.0132	1.0178	1.0180	1.0184	1.0183	1.0183	1.0196
Mean Max.	1.0098	1.0101	1.0090	1.0092	1.0106	1.0111	1.0156	1.0174	1.0170	1.0168	1.0137	1.0115
Mean Min.	1.0006	1.0006	1.0004	1.0004	1.0014	1.0013	1.0043	1.0070	1.0121	1.0107	1.0070	1.0003
Min.	0.9994	0.9994	0.9994	0.9994	1.0005	1.0002	1.0011	1.0029	1.0110	1.0032	1.0022	0.9995
												0.9994

ABERDEEN, GRAYS HARBOR, WASH.

1934	---	---	---	---	1.0031	1.0075	1.0097	1.0107	1.0082	1.0002	1.0004	---
1935	1.0001	1.0007	0.9998	1.0013	1.0024	049	065	---	---	---	---	---

NEAH BAY, WASH.

1936	1.0227	1.0238	1.0236	1.0241	1.0232	1.0215	1.0236	1.0244	1.0246	1.0242	1.0239	1.0237
1937	243	240	233	233	236	234	243	246	248	238	231	233
1938	230	229	232	228	242	246	247	250	249	239	241	238
1939	232	236	236	246	236	240	246	245	244	243	236	235
1940	235	227	224	232	228	241	245	243	235	238	233	235
1941	233	233	235	234	238	239	243	242	235	232	226	238
1942	229	233	230	228	233	235	235	242	247	238	234	216
1943	227	224	235	216	233	240	240	244	245	240	242	235
1944	229	237	239	241	243	245	245	235	242	234	242	239

*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.	
NEAH BAY, WASH. - Continued																
1945	1.0231	1.0236	1.0230	1.0234	1.0230	1.0245	1.0244	1.0241	1.0239	1.0234	1.0221	1.0220	1.0234	1.0255	1.0106	
1946	213	214	217	216	231	211	224	237	237	238	232	219	224	247	161	
1947	224	216	224	231	232	212	234	238	240	226	224	221	227	246	158	
1948	219	229	223	221	217	220	232	236	225	233	231	220	226	246	153	
1949	232	218	217	232	229	236	239	239	242	239	227	222	231	254	106	
1950	226	216	209	218	236	240	236	237	236	228	224	217	229	253	161	
1951	214	198	—	—	—	—	—	—	—	—	—	—	—	243*	108*	
1952	221	214	227	229	225	232	237	235	238	239	232	226	230	245	197	
1953	217	191	224	227	220	232	234	234	233	228	222	212	223	240	099	
Mean Density	1.0227	1.0224	1.0228	1.0229	1.0231	1.0233	1.0238	1.0241	1.0241	1.0236	1.0232	1.0227	1.0232			
Mean Salinity	30.7	30.3	30.8	31.0	31.2	31.5	32.1	32.1	32.5	32.5	31.9	31.4	30.7	31.4		
Max.	1.0250	1.0248	1.0249	1.0254	1.0250	1.0252	1.0255	1.0253	1.0255	1.0259	1.0250	1.0249	1.0259			
Mean Max.	1.0236	1.0236	1.0238	1.0240	1.0242	1.0244	1.0246	1.0248	1.0249	1.0246	1.0240	1.0236				
Mean Min.	1.0213	1.0191	1.0212	1.0214	1.0209	1.0214	1.0225	1.0228	1.0225	1.0220	1.0209	1.0210				
Min.	1.0189	1.0099	1.0166	1.0177	1.0178	1.0153	1.0198	1.0180	1.0167	1.0190	1.0106	1.0161	1.0099			
PORT ANGELES, WASH.																
1934	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
1935	1.0200	1.0215	1.0217	1.0220	1.0228	1.0230	1.0229	1.0229	1.0228	1.0221	1.0222	—	—	1.0239*	1.0199*	
PORT TOWNSEND (Fort Worden), WASH.																
1935	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
1936	1.0230	1.0229	—	—	—	—	—	—	—	—	—	—	—	237*	224*	
EVERETT, WASH.																
1934	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
1935	1.0153	1.0131	1.0158	1.0140	1.0101	1.0104	1.0113	1.0104	1.0104	1.0183	1.0146	1.0156	—	1.0221*	0.9985*	
1935	—	—	—	—	—	—	—	—	—	—	—	—	—	—	218*	1.0014*

BREMERTON, WASH.

1934	1.0198	1.0199	1.0204	1.0208	1.0213	1.0215	1.0218	1.0221	1.0222	1.0221	1.0218	1.0213
1935	1.0172	1.0193	1.0188	1.0168	1.0177	1.0180	1.0171	1.0199	1.0208	1.0213	1.0222	1.0236
1936	1.0177	217	217	209	216	219	218	218	208	213	222	097
1937	209	219	218	223	223	224	223	223	223	223	224	193*

SEATTLE (Elliott Bay), WASH.

1922	1.0189	1.0186	1.0174	1.0146	1.0140	1.0171	1.0199	1.0208	1.0213	1.0212	1.0211	1.0206
1923	193	188	185	168	177	180	201	208	213	216	216	200
1924	164	185	184	190	205	216	219	223	223	198	189	200
1925	193	181	190	175	182	195	206	210	214	218	218	212
1926	201	199	185	197	202	206	216	220	218	212	211	203
1927	198	183	177	176	160	164	205	211	210	204	194	189
1928	183	196	182	167	173	187	203	211	216	211	213	216
1929	215	211	203	194	183	176	205	215	218	220	220	214
1930	214	190	193	183	189	194	203	210	212	212	216	214
1931	201	200	191	175	176	190	198	207	210	207	203	206
1932	195	195	166	166	171	171	177	191	202	208	210	183
1933	183	199	184	179	179	171	187	201	203	198	190	187
1934	169	182	177	180	186	196	204	206	210	211	199	193
1935	188	185	185	188	182	190	200	207	210	212	214	215
1936	194	202	190	188	177	174	195	205	211	217	218	209
1937	215	206	194	190	189	184	196	206	211	215	200	192
1938	192	198	190	175	177	186	205	209	216	225	228	226
1939	221	220	218	217	220	215	217	221	224	227	229	226
1940	221	217	216	210	212	216	217	220	223	226	224	222
1941	222	220	217	202	210	222	224	227	227	224	223	220
1942	221	220	221	224	221	225	225	225	226	229	230	228
1943	223	221	221	218	220	222	220	229	232	231	232	230
1944	229	226	227	226	226	224	225	230	232	231	233	226

^aObservations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
SEATTLE (Elliott Bay), WASH. - Continued															
1945	1.0223	1.0228	1.0222	1.0223	1.0220	1.0222	1.0223	1.0228	1.0230	1.0229	1.0223	1.0224	1.0263	1.0212	
1946	215	216	215	213	212	210	211	217	223	225	219	217	231	201	
1947	218	214	212	214	211	212	216	220	223	225	218	225	229*	198*	
1948	215	216	214	214	214	203	209	214	218	219	221	220	215	228	181
1949	220	218	214	213	205	208	216	220	223	225	227	220	217	231	189
1950	220	218	211	208	206	210	208	213	219	223	220	213	214	230	190
1951	211	204	210	213	212	214	216	216	216	204	227	224	224	234*	162*
1952	223	222	220	216	219	218	223	224	228	229	227	225	223	237	203
1953	221	209	211	215	214	215	213	216	220	220	221	217	216	233	200
Mean Density Salinity	1.0206	1.0204	1.0200	1.0196	1.0195	1.0199	1.0209	1.0215	1.0218	1.0219	1.0216	1.0212	1.0207		
	28.0	27.7	27.2	26.7	26.5	27.1	28.4	29.1	29.5	29.7	29.3	28.8		28.1	
Max.	1.0240	1.0257	1.0234	1.0259	1.0263	1.0249	1.0239	1.0252	1.0244	1.0250	1.0254	1.0241	1.0263		
Mean Max.	1.0219	1.0217	1.0214	1.0213	1.0214	1.0214	1.0219	1.0222	1.0225	1.0227	1.0226	1.0223			
Mean Min.	1.0186	1.0183	1.0178	1.0174	1.0172	1.0177	1.0196	1.0206	1.0210	1.0204	1.0203	1.0193			
Min.	1.0123	1.0099	1.0101	1.0106	1.0104	1.0068	1.0101	1.0154	1.0185	1.0181	1.0137	1.0146	1.0126	1.0068	
SEATTLE (Duwamish River, WASH.															
1924	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1925	1.0096	1.0099	1.0106	1.0103	—	—	—	—	—	—	—	—	—	1.0240*	1.0038*
														134*	091*
TACOMA, WASH.															
1934	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1935	1.0160	1.0172	1.0187	1.0172	1.0153	1.0145	1.0160	1.0160	1.0194	1.0192	1.0161	1.0175	—	1.0230*	1.0062*
														213*	059*
1923	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1924	1.0174	1.0135	1.0171	—	—	—	—	—	—	—	—	—	—	1.0214*	1.0088*
														194*	014*

Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
FRIDAY HARBOR, SAN JUAN ISLAND, WASH. - <i>Continued</i>															
1950	1.0226	1.0227	1.0225	1.0226	1.0226	1.0226	1.0226	1.0221	1.0221	1.0223	1.0223	1.0228	1.0224	1.0225	1.0194
1951	222	221	225	226	225	226	225	223	223	228	233	230	229	225	237*
1952	230	227	228	229	228	229	226	223	223	228	233	230	229	225	237*
Mean															
Density	1.0224	1.0224	1.0225	1.0225	1.0224	1.0224	1.0222	1.0220	1.0220	1.0223	1.0225	1.0228	1.0227	1.0225	1.0224
Salinity	30.3	30.3	30.4	30.4	30.3	30.4	30.1	29.8	30.2	30.4	30.8	30.7	30.4	30.3	30.3
Max.	1.0232	1.0232	1.0232	1.0233	1.0233	1.0236	1.0247	1.0237	1.0237	1.0235	1.0235	1.0235	1.0234	1.0247	
Mean Max.	1.0227	1.0227	1.0227	1.0228	1.0228	1.0230	1.0229	1.0231	1.0230	1.0231	1.0232	1.0231	1.0229		
Mean Min.	1.0219	1.0221	1.0222	1.0222	1.0211	1.0202	1.0197	1.0202	1.0202	1.0214	1.0220	1.0223	1.0220		
Min.	1.0193	1.0212	1.0215	1.0216	1.0189	1.0164	1.0164	1.0185	1.0185	1.0194	1.0200	1.0218	1.0198	1.0141	
KETCHIKAN, ALASKA															
1922	—	—	—	1.0229	1.0226	1.0205	1.0190	1.0210	1.0201	1.0183	1.0182	1.0170	1.0202	—	—
1923	1.0222	1.0227	214	206	197	185	184	185	183	189	189	170	—	—	1.0233* 1.0080*
1924	209	213	225	200	178	177	192	192	167	177	191	207	1.0195	233*	117*
														238	119
1925	231	231	229	221	200	181	177	183	192	212	197	173	202	229	131
1926	170	197	190	204	201	194	197	192	209	198	201	213	197	228	128
1927	220	227	224	224	216	197	182	191	197	182	206	222	207	242	160
1928	202	208	208	208	189	175	178	185	208	195	197	204	196	229	115
1929	203	227	220	224	218	199	181	177	198	187	170	193	200	236	101
1930	221	224	222	221	212	180	185	188	204	183	173	165	198	237	102
1931	177	197	209	216	197	190	188	183	189	188	187	214	195	254	139
1932	214	225	211	216	203	196	180	177	173	176	181	209	197	233	128
1933	214	220	217	203	182	171	162	173	179	171	192	192	192	230	132
1934	209	129	205	208	196	188	183	190	193	191	186	203	194	227	129

1935	225	206	212	215	216	219	223	222	221	212	210	207	216	230	168
1936	210	207	212	215	212	203	190	212	192	165	111	122	188	231	101
1937	199	202	193	202	192	204	166	121	138	175	170	169	178	226	107
1938	189	195	202	191	207	197	194	196	201	180	198	200	196	223	106
1939	200	216	227	218	195	186	179	170	175	177	173	173	191	267	112
1940	207	217	216	208	213	211	196	171	187	198	193	187	201	231	149
1941	211	215	226	218	214	214	206	205	204	204	174	186	202	238*	139*
1942	—	216	213	225	215	209	205	208	199	183	179	202	—	233*	152*
1943	204	187	202	221	225	224	224	217	201	—	188	184	192	—	242*
1944	219	230	234	233	222	194	193	198	198	193	198	216	211	246	167
1945	219	225	217	218	207	188	—	—	196	182	192	218	—	230*	112*
1946	214	217	208	208	198	180	173	191	178	169	184	198	193	227	137
1947	202	215	221	228	214	165	173	192	171	185	185	210	197	223	149
1948	218	224	221	204	182	171	167	152	179	171	168	196	188	231	127
1949	225	228	226	223	206	178	172	173	178	178	189	208	218	238	148
1950	215	226	227	222	196	170	186	186	198	196	212	213	204	232	107
1951	231	218	227	217	197	172	179	189	186	180	188	208	199	235	150
1952	223	225	216	215	187	180	180	182	182	177	173	191	194	231	133
1953	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mean Density	1.02009	1.02115	1.02117	1.02116	1.02025	1.0191	1.0187	1.0186	1.0188	1.0185	1.0184	1.0197	1.0198	—	—
Mean Salinity	28.4	29.1	29.4	29.3	27.8	26.0	25.5	25.4	25.6	25.2	25.1	26.8	26.9	—	—
Max.	1.0244	1.0244	1.0250	1.0267	1.0240	1.0244	1.0242	1.0228	1.0229	1.0226	1.0233	—	—	—	—
Mean Max.	1.0225	1.0226	1.0228	1.0230	1.0224	1.0211	1.0206	1.0205	1.0210	1.0208	1.0219	—	—	—	—
Mean Min.	1.0174	1.0186	1.0188	1.0192	1.0174	1.0163	1.0163	1.0163	1.0161	1.0147	1.0150	1.0166	—	—	—
Min.	1.0107	1.0101	1.0107	1.0110	1.0111	1.0111	1.0107	1.0114	1.0113	1.0097	1.0101	1.0080	1.0101	—	—
													1.0080		
SITKA, ALASKA															
1924	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1925	1.0211	1.0228	1.0213	1.0211	1.0159	1.0164	1.0136	1.0151	1.0157	1.0172	1.0179	1.0192	—	—	—
—	—	—	—	—	190	177	174	172	166	189	211	200	—	—	—
1943	218	221	220	216	197	172	181	184	181	193	206	209	200	240*	114*
1944	—	—	—	—	—	—	—	—	—	—	—	—	—	234	102

*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
SITKA, ALASKA - <i>Continued</i>															
1945	1.0220	1.0221	1.0212	1.0177	1.0166	1.0165	1.0181	1.0178	1.0185	1.0221	1.0222	1.0196	1.0235	1.0109	
1946	223	228	227	195	171	178	178	186	194	210	227	—	236*	105*	
1947	217	231	202	212	195	195	197	206	161	205	208	219	204	237	124
1948	212	230	232	234	205	188	192	194	186	209	201	227	209	239	136
1949	218	235	227	221	205	200	183	198	203	200	206	226	210	239	122
1950	236	238	236	236	217	192	192	194	208	222	232	237	220	242	128
1951	232	238	235	216	205	186	179	196	193	217	223	228	212	242	137
1952	234	229	229	221	196	185	182	194	180	189	201	225	205	240	132
1953	231	223	223	222	199	175	184	190	188	197	212	211	205	237	130
Mean Density	1.0223	1.0229	1.0223	1.0220	1.0195	1.0181	1.0179	1.0186	1.0182	1.0198	1.0208	1.0216	1.0203		
Salinity	30.2	31.0	30.2	29.8	26.5	24.7	24.4	25.4	24.8	26.9	28.2	29.3	27.6		
Max.	1.0242	1.0242	1.0242	1.0242	1.0235	1.0225	1.0223	1.0232	1.0228	1.0233	1.0242	1.0242			
Mean Max.	1.0235	1.0236	1.0236	1.0233	1.0224	1.0213	1.0210	1.0216	1.0215	1.0222	1.0229	1.0229			
Mean Min.	1.0203	1.0216	1.0202	1.0200	1.0156	1.0139	1.0144	1.0142	1.0139	1.0146	1.0170	1.0181			
Min.	1.0172	1.0180	1.0141	1.0177	1.0102	1.0105	1.0093	1.0091	1.0095	1.0111	1.0082	1.0089	1.0082		
JUNEAU, ALASKA															
1937	1.0206	1.0218	1.0218	1.0214	1.0120	1.0094	1.0097	1.0098	1.0116	1.0130	1.0191	1.0206	1.0159	1.0012	
1938	212	213	211	206	150	124	099	104	120	133	182	192	162	237	032
1939	216	214	224	214	176	110	085	079	093	144	185	196	161	233	005
1940	211	219	224	214	150	129	088	105	—	—	—	—	—	235*	008*
1941	—	—	—	—	—	—	—	—	—	—	—	—	—	225*	061*
1942	192	211	—	208	141	101	090	098	115	132	199	218	—	229*	040*
1943	212	210	214	161	135	090	058	072	104	122	154	158	181	230*	012*
1944	199	205	168	128	082	081	095	111	108	158	—	—	—	228	032

1945	204	217	218	219	140	101	096	091	104	109	202	225	160
1946	219	226	217	206	132	093	090	083	128	143	159	216	159
1947	204	216	178	175	135	078	078	084	127	151	177	143	249
1948	188	212	226	225	112	074	077	086	103	137	152	210	150
1949	194	228	219	189	148	111	101	117	130	139	129	204	159
Mean Density												275	024
Mean Salinity												237	030
Max. Mean Max.	1.0209	1.0217	1.0217	1.0201	1.0137	1.0103	1.0090	1.0099	1.0108	1.0133	1.0171	1.0203	1.0157
Mean Min.	28.4	29.4	29.4	27.3	19.0	14.5	12.8	14.0	15.2	18.4	23.4	27.6	21.6
Max. Mean Max.	1.0259	1.0244	1.0277	1.0243	1.0245	1.0206	1.0194	1.0235	1.0201	1.0222	1.0237	1.0249	1.0277
Mean Min.	1.0232	1.0233	1.0240	1.0231	1.0213	1.0168	1.0162	1.0142	1.0161	1.0167	1.0187	1.0213	1.0231
Max. Mean Max.	1.0146	1.0161	1.0165	1.0129	1.0054	1.0045	1.0045	1.0039	1.0039	1.0043	1.0052	1.0093	1.0142
Mean Min.	1.0072	1.0095	1.0050	1.0058	1.0005	0.9999	1.0008	1.0008	1.0006	0.9986	1.0028	1.0078	0.9986
HAINES, ALASKA													
1949	1.0227	—	1.0233	1.0219	1.0181	1.0150	1.0064	1.0039	1.0067	1.0166	1.0184	1.0209	—
1950	—	1.0228	232	228	217	116	064	067	079	184	231	236	—
1951	235	—	—	—	—	—	—	—	—	—	—	—	—
SKAGWAY, ALASKA													
1944	—	—	—	—	—	—	—	—	1.0036	1.0071	1.0102	1.0214	1.0205
1945	1.0230	1.0232	1.0230	1.0228	1.0127	1.0046	1.0027	010	077	095	223	232	1.0146
1946	234	233	—	—	129	033	010	012	081	153	196	237	—
1947	235	242	216	222	164	050	034	077	057	136	197	200	152
1948	219	232	238	241	—	—	—	—	—	—	—	—	—
1949	—	—	—	—	167	095	075	023	—	165	158	218	—
1950	239	240	235	234	190	065	035	041	058	196	232	237	167
1951	237	242	240	228	155	—	015	003	074	209	228	234	—
1952	235	236	234	225	174	074	004	029	079	063	124	213	141
1953	229	230	223	132	041	—	008	015	070	—	215	214	148

Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
SKAGWAY, ALASKA - Continued															
YAKUTAT, ALASKA															
Mean Density	1.0232	1.0236	1.0232	1.0229	1.0155	1.0058	1.0026	1.0027	1.0071	1.0143	1.0199	1.0221	1.0152	1.0238	1.0265
Mean Salinity	31.4	31.9	31.4	31.0	21.3	8.6	4.5	4.6	10.3	19.7	27.1	29.9	20.9	27.8	27.8
Max.	1.0248	1.0252	1.0249	1.0246	1.0230	1.0193	1.0143	1.0164	1.0224	1.0238	1.0259	1.0243	1.0259	1.0259	1.0259
Mean Max.	1.0240	1.0241	1.0240	1.0240	1.0222	1.0152	1.0070	1.0080	1.0185	1.0212	1.0228	1.0233	1.0232	1.0232	1.0232
Mean Min.	1.0224	1.0229	1.0213	1.0173	1.0050	1.0008	0.9999	0.9999	1.0009	1.0037	1.0129	1.0182	1.0206	1.0206	1.0206
Min.	1.0210	1.0214	1.0135	1.0095	1.0014	1.0000	0.9988	0.9989	0.9999	1.0000	1.0009	1.0108	0.9988	1.0101	1.0101
Mean Density	1.0223	1.0226	1.0219	1.0216	1.0205	1.0189	1.0155	1.0155	1.0172	1.0204	1.0218	1.0225	1.0225	1.0225	1.0225
Mean Salinity	30.2	30.6	30.2	29.8	28.5	26.1	23.8	23.5	25.4	27.6	29.1	29.9	27.8	27.8	27.8
Max.	1.0241	1.0242	1.0243	1.0241	1.0239	1.0233	1.0233	1.0231	1.0225	1.0234	1.0238	1.0265	1.0265	1.0265	1.0265
Mean Max.	1.0232	1.0234	1.0233	1.0231	1.0229	1.0224	1.0213	1.0208	1.0214	1.0222	1.0226	1.0232	1.0232	1.0232	1.0232
Mean Min.	1.0207	1.0213	1.0208	1.0200	1.0180	1.0148	1.0133	1.0132	1.0152	1.0169	1.0197	1.0206	1.0206	1.0206	1.0206
Min.	1.0189	1.0185	1.0180	1.0156	1.0149	1.0111	1.0101	1.0101	1.0111	1.0111	1.0118	1.0166	1.0174	1.0174	1.0174

CORDOVA, ALASKA

1949	---	---	---	---	---	1.0216	1.0208	1.0195	1.0180	1.0190	---	1.0224	---	1.0227*1.0161*	
1950	1.0228	1.0232	1.0230	1.0230	1.0220	213	202	191	182	205	1.0224	229	1.0216	235	161
1951	---	229	229	228	228	---	196	170	175	200	214	222	---	232*	140*
1952	229	226	228	227	227	---	---	---	206	205	214	226	---	233*	148*
1953	231	223	235	223	223	---	---	---	187	211	---	---	---	238*	135*
Mean Density	1.0229	1.0228	1.0230	1.0227	1.0225	1.0214	1.0202	1.0185	1.0186	1.0202	1.0217	1.0225	1.0214	1.0214	1.0214
Mean Salinity	31.0	30.6	31.1	30.7	30.4	29.0	27.5	25.2	25.4	27.5	29.4	30.4	29.0	29.0	29.0

MAX. 1.0234 1.0236 1.0238 1.0234 1.0232 1.0226 1.0220 1.0207 1.0225 1.0223 1.0231 1.0232

Mean Max. 1.0233 1.0233 1.0234 1.0233 1.0231 1.0225 1.0213 1.0195 1.0211 1.0218 1.0227 1.0230

Mean Min. 1.0225 1.0215 1.0225 1.0217 1.0211 1.0202 1.0185 1.0163 1.0151 1.0177 1.0205 1.0218

Min. 1.0223 1.0187 1.0224 1.0203 1.0187 1.0201 1.0170 1.0140 1.0135 1.0161 1.0202 1.0213

SEWARD, ALASKA

1926	1.0181	1.0200	1.0180	1.0176	1.0128	1.0121	1.0037	1.0049	1.0120	1.0162	1.0141	1.0209	1.0142	1.0251 1.0001
1927	216	215	225	220	205	064	019	048	---	194	209	---	---	274*0.9998*
1928	---	---	218	209	153	135	059	093	137	186	195	208	---	269*1.0005*
1929	227	227	233	207	175	056	060	086	065	---	158	231	---	274*1.0009*
1930	250	---	175	216	168	109	064	051	133	204	214	210	---	292*1.0005*
1931	218	215	224	210	177	082	058	068	145	183	193	220	166	234 1.0000
1932	228	236	222	212	196	139	095	091	158	146	218	218	180	251 1.0005
1933	228	223	235	230	182	133	083	081	158	207	205	237	184	249 1.0001
1934	228	204	211	189	115	087	097	072	108	142	187	187	152	266 0.9998
1935	215	205	223	216	179	097	052	127	138	166	206	217	170	264 1.0000
1936	208	214	223	210	173	084	092	069	145	129	156	193	158	233 0.9999
1937	214	225	218	222	166	080	073	119	108	131	---	---	---	237*1.0000*
1938	---	---	---	---	175	085	060	090	100	137	190	182	---	265*1.0001*
1939	215	222	233	229	---	078	052	059	162	184	186	210	---	249*0.9996*
1944	---	---	---	---	---	---	---	---	156	198	200	---	---	233*1.0081*

*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.	
SEWARD, ALASKA - Continued																
1945	1.0197	1.0204	1.0215	1.0212	1.0149	1.0061	1.0066	1.0042	1.0127	1.0128	1.0210	1.0207	1.0152	1.0231	1.0002	
1946	---	225	227	221	155	071	046	062	083	148	205	230	---	236*	1.0000*	
1947	228	208	183	210	139	063	065	092	104	145	---	---	---	236*	0.9996*	
1948	---	---	---	---	---	---	---	129	136	153	---	---	---	232*	1.0037*	
1949	---	---	---	---	177	116	057	113	078	180	170	215	---	235*	0.9995*	
1950	230	233	224	224	185	077	060	053	095	169	225	228	167	249	1.0004	
1951	225	---	227	211	197	170	104	127	113	192	203	---	---	260*	0.9987*	
1952	---	---	222	180	135	090	057	098	142	091	142	198	---	235*	1.0000*	
1953	203	205	222	180	135	090	053	072	121	162	194	212	154	236	0.9995	
Mean Density Salinity	1.0218	1.0216	1.0217	1.0211	1.0166	1.0096	1.0064	1.0082	1.0122	1.0161	1.0191	1.0211	1.0163			
	29.5	29.3	29.4	28.6	22.7	13.6	9.4	11.8	17.0	22.1	26.0	28.6	22.4			
Max.	1.0292	1.0255	1.0274	1.0260	1.0244	1.0243	1.0228	1.0236	1.0269	1.0266	1.0274	1.0292				
Mean Max.	1.0237	1.0237	1.0240	1.0239	1.0228	1.0203	1.0171	1.0188	1.0214	1.0221	1.0228	1.0237				
Mean Min.	1.0173	1.0168	1.0174	1.0147	1.0069	1.0011	1.0005	1.0011	1.0019	1.0054	1.0101	1.0143				
Min.	1.0064	1.0079	1.0098	1.0062	1.0014	0.9996	0.9987	0.9995	0.9993	0.9996	1.0006	1.0045	0.9987			
KODIAK, KODIAK ISLAND, ALASKA																
1935	---	---	---	1.0225	1.0228	1.0232	1.0238	1.0226	1.0228	1.0231	1.0231	---	---	1.0251*	1.0162*	
1936	1.0227	1.0232	1.0237	1.0241	221	229	---	---	---	---	---	---	---	245*	168*	
WOMENS BAY, KODIAK ISLAND, ALASKA																
1950	---	---	1.0224	1.0234	1.0212	1.0178	1.0111	1.0080	1.0130	1.0079	1.0185	1.0228	1.0236	---	1.0269*	0.9999*
1951	1.0231	1.0224	1.0234	1.0234	1.0212	1.0178	115	189	207	198	218	213	222	1.0203	244	1.0037
1952	227	224	228	233	202	174	184	213	205	200	197	210	208	285	054	
1953	197	219	227	196	153	133	163	197	214	177	177	202	188	249	004	

Mean Density	1.0218	1.0222	1.0230	1.0214	1.0178	1.0133	1.0154	1.0187	1.0174	1.0195	1.0204	1.0218	1.0194
Salinity	29.5	30.1	31.1	29.0	24.3	18.4	21.2	25.5	23.8	26.5	27.7	29.5	26.4
Max.	1.0244	1.0239	1.0243	1.0242	1.0243	1.0226	1.0231	1.0235	1.0233	1.0273	1.0285	1.0249	1.0285
Mean Max.	1.0239	1.0236	1.0239	1.0234	1.0231	1.0212	1.0214	1.0222	1.0223	1.0249	1.0248	1.0240	
Mean Min.	1.0179	1.0175	1.0214	1.0146	1.0038	1.0034	1.0052	1.0085	1.0082	1.0092	1.0110	1.0157	
Min.	1.0104	1.0103	1.0206	1.0045	1.0004	1.0003	1.0003	1.0000	1.0000	1.0012	1.0042	1.0062	0.9999
DUTCH HARBOR, UNALASKA ISLAND, ALASKA													
1946	---	---	---	---	---	---	1.0230	1.0237	1.0232	1.0240	1.0231	1.0237	---
1947	1.0238	1.0235	1.0236	1.0232	1.0233	1.0220	238	239	239	235	233	1.0235	1.0191*
1948	234	234	234	241	241	238	235	239	236	238	243	237	254
1949	242	240	241	242	242	232	239	242	237	239	239	237	220
1950	233	239	238	239	237	235	233	235	237	238	240	237	210
1951	239	238	239	235	230	229	231	238	236	241	241	236	188
1952	238	239	242	242	238	233	238	241	241	237	236	249	205
1953	236	237	236	235	233	233	232	238	237	235	235	235	222
Mean Density	1.0237	1.0237	1.0238	1.0237	1.0236	1.0231	1.0234	1.0239	1.0237	1.0238	1.0237	1.0237	1.0237
Salinity	32.0	32.0	32.1	32.0	31.9	31.2	31.6	32.3	32.3	32.0	32.1	32.0	32.0
Max.	1.0246	1.0245	1.0248	1.0252	1.0252	1.0262	1.0248	1.0275	1.0249	1.0254	1.0249	1.0254	
Mean Max.	1.0243	1.0242	1.0242	1.0246	1.0247	1.0246	1.0244	1.0250	1.0244	1.0244	1.0244	1.0244	
Mean Min.	1.0225	1.0230	1.0231	1.0219	1.0224	1.0212	1.0217	1.0227	1.0230	1.0231	1.0227	1.0232	
Min.	1.0188	1.0214	1.0228	1.0205	1.0165	1.0197	1.0197	1.0220	1.0223	1.0191	1.0229	1.0165	
SWEEPER COVE, ADAK ISLAND, ALASKA													
1944	1.0238	1.0225	1.0210	1.0203	1.0223	1.0237	---	---	---	1.0183	1.0182	1.0185	---
1945	197	204	173	167	186	208	1.0228	1.0227	1.0214	---	---	188	---
1946	178	194	171	110	102	165	188	186	202	182	211	236	251*
1947	215	227	211	196	229	239	230	225	231	204	229	1.0177	276
1948	233	228	234	228	227	211	217	214	207	192	208	217	250
1949	---	184	194	169	151	214	165	193	168	---	---	251	005
										---	---	264*	027*

*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
SWEEPER COVE, ADAK ISLAND, ALASKA - Continued															
1950	---	---	1.0192	1.0163	1.0189	1.0226	1.0239	1.0220	1.0227	1.0217	1.0209	1.0227	---	1.0253*0.9988*	
1951	1.0220	1.0232	221	189	160	203	225	247	247	244	245	234	1.0222	259	1.0002
1952	242	242	245	242	242	239	246	250	249	247	245	244	244	259	191
1953	237	239	231	225	228	225	240	234	243	242	242	243	236	263	150
Mean	1.0220	1.0219	1.0208	1.0189	1.0194	1.0216	1.0221	1.0222	1.0220	1.0217	1.0218	1.0222	1.0214		
Salinity	29.8	29.7	28.2	25.8	26.4	29.3	29.9	30.1	29.8	29.4	29.5	30.1	29.0		
Max.	1.0251	1.0252	1.0254	1.0264	1.0259	1.0258	1.0268	1.0276	1.0263	1.0258	1.0252	1.0256	1.0276		
Mean Max.	1.0247	1.0247	1.0247	1.0248	1.0249	1.0249	1.0251	1.0252	1.0251	1.0249	1.0245	1.0247			
Mean Min.	1.0170	1.0163	1.0116	1.0099	1.0088	1.0148	1.0162	1.0151	1.0142	1.0164	1.0155	1.0174			
Min.	1.0085	1.0089	1.0038	1.0005	0.9988	1.0035	1.0034	1.0038	1.0091	1.0084	1.0066	1.0092	0.9988		
CONSTANTINE HARBOR, AMCHITKA ISLAND, ALASKA															
1944	---	---	---	---	---	---	---	1.0248	1.0247	1.0243	1.0243	1.0243	1.0243	1.0243	1.0235*
1945	1.0245	---	---	---	---	---	244	245	238	241	242	240	---	251*	210*
1946	243	---	---	---	---	245	243	243	239	244	244	239	---	251*	202*
1947	240	1.0244	---	---	---	245	246	245	245	245	244	244	---	252*	197*
1948	249	255	1.0248	1.0245	---	249	251	252	251	252	---	---	---	278*	229*
Mean	1.0244	1.0250	1.0248	1.0245	---	1.0247	1.0246	1.0246	1.0243	1.0245	1.0243	1.0242	---		
Salinity	32.9	33.7	33.5	33.1	---	33.3	33.2	33.2	32.8	33.1	32.8	32.7			
Max.	1.0259	1.0278	1.0252	1.0250	---	1.0267	1.0266	1.0256	1.0256	1.0258	1.0248	1.0250	1.0278		
Mean Max.	1.0252	1.0264	---	---	---	1.0254	1.0254	1.0251	1.0251	1.0249	1.0249	1.0247	1.0248		
Mean Min.	1.0229	1.0235	---	---	---	1.0242	1.0232	1.0232	1.0228	1.0236	1.0235	1.0227			
Min.	1.0197	1.0221	1.0237	1.0229	---	1.0239	1.0221	1.0216	1.0202	1.0223	1.0229	1.0210	1.0197		

MASSACRE BAY, ATTU ISLAND, ALASKA

Mean
Dens
Salin

PORT MOLLER, ALASKA

Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
MIDWAY ISLANDS, HAWAIIAN ISLANDS															
1944	—	—	1.0262	1.0261	—	1.0262	1.0263	1.0260	1.0256	1.0257	1.0256	1.0256	—	1.0274*	1.0246*
1945	1.0258	1.0256	259	265	1.0265	272	—	—	—	—	—	—	—	281*	251*
1946	—	—	—	—	—	—	268	268	266	269	268	267	—	275*	257*
1947	257	—	263	265	266	267	264	267	267	267	266	262	—	273*	246*
1948	—	—	267	265	265	264	267	—	261	264	261	—	—	279*	244*
1949	264	263	264	268	—	—	—	272	—	270	272	—	—	286*	259*
1950	268	269	269	269	—	—	267	269	267	266	265	264	—	279*	258*
1951	263	262	263	263	263	264	264	267	267	267	266	264	1.0265	273	259
1952	265	265	264	264	265	264	265	270	268	268	269	268	266	273	239
1953	264	265	266	267	266	265	265	269	266	264	264	263	260	265	255
Mean Density	1.0263	1.0263	1.0264	1.0265	1.0265	1.0265	1.0265	1.0267	1.0266	1.0266	1.0265	1.0264	1.0265	—	—
Mean Salinity	35.4	35.4	35.5	35.7	35.7	35.7	35.7	35.9	35.9	35.8	35.8	35.7	35.7	35.5	35.7
Max. Mean	1.0278	1.0275	1.0273	1.0281	1.0272	1.0281	1.0279	1.0279	1.0286	1.0274	1.0276	1.0275	—	—	—
Mean Max.	1.0269	1.0268	1.0268	1.0271	1.0269	1.0271	1.0271	1.0272	1.0271	1.0271	1.0270	1.0268	1.0286	—	—
Mean Min.	1.0256	1.0260	1.0261	1.0261	1.0260	1.0258	1.0260	1.0261	1.0261	1.0262	1.0260	1.0259	1.0258	—	—
Min.	1.0246	1.0251	1.0256	1.0257	1.0257	1.0253	1.0259	1.0239	1.0253	1.0252	1.0254	1.0251	1.0244	1.0251	1.0239
HONOLULU, HAWAIIAN ISLANDS															
1945	—	—	1.0258	1.0260	1.0262	1.0261	1.0260	1.0260	1.0261	1.0259	1.0256	—	—	1.0270*	1.0226*
1946	1.0256	1.0249	254	253	256	258	259	261	261	261	259	256	1.0257	265	200†
1947	257	259	258	257	256	259	260	254	259	256	258	258	268	200†	—
1948	253	254	256	253	256	259	258	259	261	261	260	258	258	217	—
1949	247	253	259	262	262	260	263	263	261	262	266	266	260	269	200†
1950	242	261	260	258	261	259	262	262	263	264	260	—	—	277*	200†
1951	—	—	224	258	260	259	258	260	259	257	254	—	—	287*	099*
1952	258	262	256	260	259	262	256	255	253	—	254	—	—	271*	224*
1953	251	254	250	255	256	257	261	262	256	255	253	251	255	278	223

Mean Density	1.0252	1.0256	1.0253	1.0257	1.0259	1.0260	1.0260	1.0259	1.0258	1.0257	1.0258
Salinity	34.0	34.5	34.1	34.6	34.9	34.9	35.0	35.0	34.9	34.8	34.6
Max.	1.0268	1.0266	1.0287	1.0270	1.0273	1.0278	1.0270	1.0275	1.0266	1.0269	1.0269
Mean Max.	1.0263	1.0262	1.0262	1.0266	1.0264	1.0266	1.0267	1.0265	1.0264	1.0263	1.0263
Mean Min.	1.0229	1.0235	1.0232	1.0246	1.0245	1.0254	1.0252	1.0253	1.0245	1.0251	1.0247
Min.	1.0200†	1.0200†	1.0099	1.0226	1.0224	1.0247	1.0230	1.0245	1.0200†	1.0227	1.0224
											1.0099

HILO, HAWAIIAN ISLANDS

1947	1.0207	1.0194	1.0175	1.0176	1.0150	1.0161	1.0145	1.0154	1.0167	1.0159	1.0162
1948	1.026	—	1.018	1.017	1.012	1.019	1.016	1.018	1.019	1.018	1.019
1949	1.013	2.07	1.018	1.022	1.049	1.055	1.049	1.037	1.048	1.063	1.038
1950	1.0173	1.0161	1.0140	1.0139	1.0116	1.0124	1.0124	1.0146	1.0154	1.0157	1.0175
1951	1.0170	1.0151	1.0150	1.0135	1.0141	1.0156	1.0145	1.0135	1.0164	1.0145	1.0167
1952	1.0153	1.0150	1.0141	1.0141	1.0146	1.0151	1.0160	1.0160	1.0155	1.0169	1.0171
1953	1.0182	1.0166	1.0158	1.0161	1.0175	1.0156	1.0160	1.0171	1.0169	1.0173	1.0171
Mean Density	1.0175	1.0172	1.0160	1.0149	1.0148	1.0156	1.0151	1.0156	1.0164	1.0168	1.0162
Salinity	23.9	23.5	22.0	20.5	20.4	21.4	20.8	21.4	22.5	23.0	22.2
Max.	1.0265	1.0254	1.0249	1.0244	1.0238	1.0243	1.0254	1.0243	1.0252	1.0245	1.0241
Mean Max.	1.0235	1.0231	1.0222	1.0211	1.0212	1.0207	1.0223	1.0217	1.0229	1.0232	1.0225
Mean Min.	1.0124	1.0128	1.0113	1.0106	1.0092	1.0115	1.0113	1.0113	1.0123	1.0119	1.0121
Min.	1.0098	1.0116	1.0069	1.0084	1.0028	1.0093	1.0084	1.0092	1.0111	1.0109	1.0101

JOHNSTON ISLAND, HAWAIIAN ISLANDS

1947	—	—	—	—	1.0262	1.0260	1.0262	1.0261	—	—	—
1948	—	1.0262	1.0263	1.0264	263	—	—	—	—	—	—
1949	—	259	258	263	261	259	261	—	—	—	—
1950	—	264	262	264	261	261	261	263	—	—	—
1951	1.0261	260	257	260	258	263	263	263	1.0263	—	—
1952	262	259	258	255	257	260	259	257	257	257	1.0258
1953	258	257	—	—	—	262	262	261	261	261	—
											1.0028

*Observations for the year are incomplete; extremes are for the months shown.

†Approximate

Table 1. Density of Sea Water - *Continued*
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
JOHNSTON ISLAND, HAWAIIAN ISLANDS- Continued															
Mean Density	1.0260	1.0260	1.0260	1.0261	1.0261	1.0259	1.0262	1.0261	1.0262	1.0260	1.0260	1.0261	1.0261	1.0261	1.0261
Mean Salinity	35.0	35.0	35.0	35.1	35.1	34.9	35.3	35.1	35.1	35.3	35.0	35.0	35.0	35.0	35.1
Max.	1.0267	1.0267	1.0268	1.0274	1.0268	1.0272	1.0275	1.0272	1.0270	1.0269	1.0271	1.0269	1.0275	1.0275	1.0275
Mean Max.	1.0265	1.0264	1.0264	1.0266	1.0265	1.0265	1.0267	1.0267	1.0266	1.0266	1.0266	1.0266	1.0266	1.0266	1.0266
Mean Min.	1.0256	1.0256	1.0256	1.0256	1.0256	1.0256	1.0257	1.0256	1.0256	1.0258	1.0257	1.0254	1.0254	1.0254	1.0254
Min.	1.0255	1.0251	1.0251	1.0253	1.0253	1.0252	1.0255	1.0256	1.0254	1.0252	1.0254	1.0253	1.0253	1.0253	1.0253
CANTON ISLAND, PHOENIX ISLANDS															
1950	---	---	---	---	---	---	---	1.0266	1.0264	1.0264	1.0264	1.0265	---	1.0270*	1.0262*
1951	1.0263	1.0262	1.0264	1.0264	1.0264	1.0267	1.0267	266	268	268	270	270	1.0266	274	261
1952	273	273	272	271	269	270	268	271	271	273	274	271	278	264	262
1953	273	275	275	264	275	265	266	266	266	267	267	269	278	262	262
Mean Density	1.0270	1.0270	1.0270	1.0266	1.0270	1.0267	1.0266	1.0266	1.0268	1.0268	1.0269	1.0268	1.0268	1.0268	1.0268
Mean Salinity	36.3	36.3	36.3	35.8	36.3	35.9	35.9	35.8	35.8	36.0	36.0	36.0	36.2	36.2	36.0
Max.	1.0277	1.0277	1.0277	1.0277	1.0278	1.0277	1.0271	1.0271	1.0273	1.0276	1.0278	1.0275	1.0276	1.0276	1.0276
Mean Max.	1.0273	1.0273	1.0273	1.0271	1.0273	1.0272	1.0272	1.0270	1.0270	1.0272	1.0272	1.0270	1.0272	1.0272	1.0272
Mean Min.	1.0266	1.0268	1.0266	1.0264	1.0266	1.0264	1.0263	1.0263	1.0264	1.0264	1.0265	1.0266	1.0266	1.0266	1.0266
Min.	1.0262	1.0261	1.0261	1.0262	1.0261	1.0263	1.0262	1.0262	1.0260	1.0262	1.0262	1.0262	1.0262	1.0262	1.0262
PAGO PAGO, SAMOA ISLANDS															
1950	---	1.0260	1.0261	1.0261	1.0252	1.0254	1.0259	1.0259	1.0261	1.0256	1.0245	---	1.0273*	1.0222*	1.0222*
1951	1.0253	253	250	253	246	251	256	261	261	259	250	252	1.0254	265	123
1952	256	260	259	260	259	260	261	258	262	255	256	261	259	272	234
1953	263	263	261	266	266	260	264	260	260	264	264	262	262	271	233

Mean Density	1.0258	1.0259	1.0258	1.0259	1.0256	1.0257	1.0259	1.0260	1.0260	1.0257	1.0255	1.0256	1.0258
Salinity	34.8	34.9	34.8	34.9	34.5	34.6	34.9	35.0	35.0	34.6	34.4	34.5	34.8
Max.	1.0267	1.0268	1.0273	1.0267	1.0271	1.0267	1.0268	1.0271	1.0269	1.0270	1.0267	1.0272	
Mean Max.	1.0264	1.0264	1.0266	1.0264	1.0265	1.0264	1.0264	1.0264	1.0266	1.0267	1.0264	1.0264	1.0265
Mean Min.	1.0249	1.0250	1.0250	1.0249	1.0249	1.0216	1.0247	1.0245	1.0250	1.0250	1.0240	1.0237	1.0237
Min.	1.0241	1.0247	1.0241	1.0243	1.0123	1.0237	1.0233	1.0239	1.0239	1.0239	1.0222	1.0222	1.0123
APIA (Observatory), SAMOA ISLANDS													
Mean Density	1948	---	---	1.0258	1.0255	1.0260	1.0262	1.0264	1.0267	1.0266	1.0263	1.0262	1.0274*1.0243*
Salinity	1949	1.0259	1.0262	1.0259	259	257	260	262	264	265	266	267	263
Max.	1950	262	260	262	262	263	264	263	266	267	269	271	272
Mean Max.	1951	267	267	266	262	263	263	267	267	271	272	276	279
Mean Min.	1952	276	274	267	267	264	266	267	272	273	273	274	281*
Min.	1953	274	275	272	274	272	274	275	276	277	276	274	238
Mean Density	1954	1.0268	1.0265	1.0263	1.0263	1.0264	1.0264	1.0267	1.0268	1.0270	1.0270	1.0269	1.0267
Salinity	1955	36.0	36.0	35.7	35.4	35.4	35.5	35.5	35.9	36.0	36.3	36.3	35.9
Max.	1.0283	1.0287	1.0278	1.0285	1.0277	1.0277	1.0279	1.0279	1.0280	1.0282	1.0281	1.0280	1.0283
Mean Max.	1.0274	1.0274	1.0271	1.0271	1.0267	1.0267	1.0270	1.0270	1.0271	1.0274	1.0275	1.0276	1.0276
Mean Min.	1.0245	1.0258	1.0242	1.0247	1.0247	1.0255	1.0256	1.0256	1.0260	1.0261	1.0260	1.0262	1.0258
Min.	1.0192	1.0239	1.0209	1.0238	1.0243	1.0243	1.0249	1.0249	1.0248	1.0251	1.0251	1.0254	1.0246
GUADALCANAL ISLAND (Kukum), SOLOMON ISLANDS													
Mean Density	1948	---	---	1.0254	1.0255	1.0252	1.0252	1.0253	1.0255	1.0256	1.0254	1.0253	1.0262*1.0238*
Salinity	1949	1.0254	1.0255	1.0255	252	251	255	255	255	256	256	256	261*
WAKE ISLAND													
Mean Density	1950	---	---	1.0256	1.0257	1.0259	1.0259	1.0255	1.0255	1.0254	1.0254	1.0254	1.0267*1.0236*
Salinity	1951	263	264	265	265	264	261	259	265	266	264	261	273
Max.	1952	262	263	265	265	265	266	261	263	258	263	265	240*
Mean Max.	1953	262	263	265	265	265	266	262	256	256	253	259	277*
Mean Min.													231
Min.													284
Mean Density	1954	---	---	1.0262	1.0263	1.0253	1.0253	1.0255	1.0255	1.0254	1.0254	1.0254	1.0260
Salinity	1955	261	261	261	261	261	261	261	261	260	260	260	261
Max.	1956	261	261	261	261	261	261	261	261	260	260	260	261
Mean Max.	1957	261	261	261	261	261	261	261	261	260	260	260	261
Mean Min.	1958	261	261	261	261	261	261	261	261	260	260	260	261
Min.	1959	261	261	261	261	261	261	261	261	260	260	260	261

*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
WAKE ISLAND - Continued															
Mean Density	1.0260	1.0261	1.0263	1.0263	1.0263	1.0262	1.0262	1.0259	1.0258	1.0256	1.0259	1.0258	1.0260		
Mean Salinity	35.0	35.1	35.4	35.4	35.4	35.3	35.3	34.9	34.8	34.5	34.9	34.8	35.0		
Max. Mean Max.	1.0276	1.0272	1.0274	1.0284	1.0275	1.0273	1.0273	1.0272	1.0273	1.0276	1.0277	1.0268	1.0284		
Mean Min.	1.0268	1.0268	1.0273	1.0274	1.0271	1.0269	1.0269	1.0268	1.0268	1.0268	1.0270	1.0266			
Min. Mean Min.	1.0245	1.0253	1.0246	1.0251	1.0250	1.0251	1.0253	1.0247	1.0246	1.0242	1.0242	1.0241	1.0231	1.0236	1.0231
Min. Min.	1.0241	1.0252	1.0241	1.0242	1.0240	1.0248	1.0251	1.0241	1.0241	1.0231	1.0236	1.0236	1.0231		
KWAJALEIN ISLAND, MARSHALL ISLANDS															
1949	---	1.0259	1.0258	1.0258	1.0256	1.0253	1.0256	1.0253	1.0254	1.0254	1.0253	1.0250	---	1.0263	*1.0234*
1950	1.0254	256	256	254	256	256	256	250	250	250	252	247	---	267*	238*
1951	251	254	255	254	258	259	259	257	257	257	253	255	1.0256	264	238
1952	253	255	257	261	257	254	255	256	255	255	252	251	255	273	240
1953	252	254	---	260	263	262	263	263	261	264	262	258	---	268*	247*
Mean Density	1.0252	1.0256	1.0256	1.0257	1.0258	1.0257	1.0257	1.0257	1.0257	1.0257	1.0254	1.0252	1.0256		
Mean Salinity	34.0	34.5	34.6	34.6	34.8	34.6	34.6	34.6	34.6	34.6	34.2	34.0	34.5		
Max. Mean Max.	1.0262	1.0262	1.0266	1.0273	1.0270	1.0267	1.0267	1.0266	1.0267	1.0267	1.0267	1.0263	1.0273		
Mean Min.	1.0260	1.0260	1.0264	1.0264	1.0264	1.0264	1.0264	1.0262	1.0262	1.0262	1.0259	1.0257			
Min. Mean Min.	1.0246	1.0251	1.0250	1.0251	1.0252	1.0249	1.0250	1.0248	1.0248	1.0247	1.0248	1.0246	1.0246		
Min. Min.	1.0243	1.0247	1.0243	1.0241	1.0241	1.0249	1.0249	1.0247	1.0238	1.0238	1.0240	1.0240	1.0240	1.0240	1.0234
TRUK ISLANDS (Moen Island), CAROLINE ISLANDS															
1949	---	---	---	---	---	---	---	---	1.0251	1.0250	1.0248	1.0251	1.0249	1.0251	---
1950	1.0253	1.0254	1.0255	1.0255	---	---	---	---	241	247	---	251	252	---	264*
1951	250	256	256	246	---	---	---	---	---	---	---	251	253	255	264*
1952	---	---	---	---	---	---	---	---	---	---	---	251	253	255	273*
1953	256	257	258	255	1.0258	1.0254	254	244	252	253	255	254	255	254	272

YAP ISLAND, CAROLINE ISLANDS

1951	---	1.0256	1.0259	1.0256	1.0248	1.0250	1.0244	1.0246	1.0250	1.0246	---	1.0265*1.0204*
1952	1.0255	1.0255	258	256	231	221	242	237	235	243	248	1.0243
1953	253	246	---	---	---	---	---	---	---	---	261*	168
Mean	1.0254	1.0250	1.0257	1.0258	1.0244	1.0234	1.0246	1.0240	1.0244	1.0246	---	261*
Salinity	34.2	33.7	34.6	34.8	32.9	31.6	33.2	32.4	32.4	33.2	33.3	223*
Max.	1.0261	1.0261	1.0262	1.0265	1.0261	1.0257	1.0254	1.0254	1.0255	1.0253	1.0256	1.0265
Mean Max.	1.0259	1.0260	1.0261	1.0263	1.0254	1.0248	1.0254	1.0250	1.0254	1.0253	1.0256	1.0265
Mean Min.	1.0246	1.0236	1.0250	1.0246	1.0228	1.0191	1.0228	1.0208	1.0192	1.0207	1.0228	1.0206
Min.	1.0245	1.0223	1.0247	1.0237	1.0206	1.0170	1.0219	1.0168	1.0172	1.0217	1.0204	1.0168

ANGAUR ISLAND, PALAU ISLANDS

1951	---	1.0227	1.0241	1.0244	1.0235	1.0219	---	---	1.0212	1.0210	1.0217	1.0231	---
1952	1.0227	1.0241	1.0244	1.0235	1.0219	---	---	---	1.0212	1.0210	1.0217	1.0231	---
1949	---	---	1.0252	1.0248	1.0245	1.0247	---	1.0245	1.0245	---	---	---	1.0279*1.0142*
1950	---	---	1.0246	246	248	251	249	1.0246	246	---	---	---	287*
Mean	1.0253	1.0255	1.0258	1.0258	257	256	255	254	253	252	256	256	116*
Salinity	34.5	34.6	34.8	34.9	34.9	34.9	34.9	34.4	34.4	34.1	34.4	34.5	232*
Max.	1.0260	1.0260	1.0266	1.0266	1.0269	1.0268	1.0265	1.0262	1.0263	1.0261	1.0260	1.0269	239
Mean Max.	1.0257	1.0259	1.0260	1.0262	1.0261	1.0262	1.0264	1.0260	1.0259	1.0258	1.0258	1.0259	239
Mean Min.	1.0253	1.0253	1.0255	1.0256	1.0256	1.0257	1.0254	1.0244	1.0247	1.0244	1.0244	1.0252	230
Min.	1.0252	1.0252	1.0254	1.0254	1.0255	1.0253	1.0251	1.0232	1.0239	1.0234	1.0230	1.0251	230
													1.0230

*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
SAN FERNANDO, LUZON ISLAND, PHILIPPINE ISLANDS															
MANILA, LUZON ISLAND, PHILIPPINE ISLANDS															
1948	1.0247	1.0251	1.0248	1.0256	1.0243	1.0238	1.0228	1.0212	1.0226	1.0242	1.0246	1.0242	1.0264*	1.0149*	1.0242
1949	1.0247	247	246	254	252	247	224	218	230	240	250	1.0242	260	195	
1947	1.0212	1.0215	1.0232	1.0238	1.0244	1.0246	1.0185	1.0181	1.0150	1.0194	1.0200	1.0206	1.0251*	1.0008*	
1948	1.0229	229	234	245	251	254	234	229	132	155	225	214	1.0215	258	100
1949	229	229	234	245	251	254	253	224	197	204	236	242	233	260	161
1950	244	248	246	249	256	249	191	139	248	250	247	249	235	265	99
1951	249	254	258	258	255	244	242	230	246	200	209	229	240	268	142
1952	248	243	238	237	241	238	214	125	140	203	191	227	212	268	61
1953	225	222	226	226	239	230	207	149	143	191	193	215	206	251	59
Mean Density	1.0234	1.0235	1.0239	1.0242	1.0248	1.0244	1.0218	1.0182	1.0179	1.0200	1.0214	1.0226	1.0222		
Mean Salinity	31.6	31.8	32.3	32.7	33.5	32.9	29.5	24.8	24.8	24.4	27.2	29.0	30.6	30.1	
Max.	1.0268	1.0267	1.0264	1.0263	1.0265	1.0257	1.0260	1.0258	1.0256	1.0254	1.0253	1.0268	1.0268		
Mean Max.	1.0253	1.0251	1.0254	1.0252	1.0256	1.0254	1.0243	1.0233	1.0217	1.0235	1.0244	1.0251			
Mean Min.	1.0203	1.0203	1.0222	1.0222	1.0232	1.0222	1.0188	1.0139	1.0141	1.0149	1.0152	1.0168			
Min.	1.0162	1.0162	1.0194	1.0166	1.0204	1.0177	1.0105	1.0059	1.0078	1.0105	1.0008	1.0112	1.0008		
LEGASPI, LUZON ISLAND, PHILIPPINE ISLANDS															
1947	1.0211	1.0203	1.0214	1.0222	1.0228	1.0239	1.0227	1.0240	1.0235	1.0230	1.0198	1.0226	1.0261*	1.0126*	
1948	1.0219	215	211	214	213	244	235	252	246	245	208	203	1.0226	277	113
1949	215	211	214	213	245	239	253	224	236	188	183	221	264	122	
1950	172	175	182	206	213	202	210	224	220	215	197	188	200	262	124
1951	186	194	162	187	170	169	165	170	178	175	167	168	174	255	124
1952	170	168	166	163	172	220	231	263	257	256	260	215	298	135	
1953	267	270	267	275	271	262	266	261	264	259	254	228	262	302	202

Mean Density	1.0201	1.0204	1.0200	1.0211	1.0210	1.0224	1.0226	1.0236	1.0237	1.0232	1.0214	1.0204	1.0217
Salinity	27.3	27.7	27.2	28.6	28.5	30.3	30.6	31.9	32.0	31.4	29.0	27.7	29.4
Max.	1.0299	1.0286	1.0297	1.0300	1.0298	1.0296	1.0302	1.0296	1.0298	1.0281	1.0278	1.0296	1.0302
Mean Max.	1.0237	1.0237	1.0244	1.0242	1.0246	1.0258	1.0265	1.0266	1.0264	1.0261	1.0252	1.0249	
Mean Min.	1.0149	1.0160	1.0164	1.0172	1.0159	1.0180	1.0183	1.0190	1.0192	1.0180	1.0158	1.0151	
Min.	1.0125	1.0124	1.0124	1.0135	1.0126	1.0130	1.0125	1.0131	1.0136	1.0128	1.0113	1.0114	1.0113
TACLOBAN, LEYTE ISLAND, PHILIPPINE ISLANDS													
1951	—	—	—	—	—	1.0225	1.0223	1.0223	1.0224	1.0237	1.0237	—	1.0248*1.0219*
1952	1.0236	—	1.0251	1.0259	1.0246	261	263	251	248	239	246	235	—
1953	239	1.0233	240	250	253	252	—	255	256	253	253	251	—
CEBU, CEBU ISLAND, PHILIPPINE ISLANDS													
1947	—	—	—	—	—	1.0250	1.0237	1.0246	1.0248	1.0244	1.0244	1.0248	1.0247
1948	1.0246	1.0254	1.0253	1.0255	255	249	243	249	249	248	237	238	1.0259*1.0143*
1949	247	250	254	257	254	252	243	247	243	241	235	239	1.0248
1950	242	250	252	251	251	245	248	247	243	250	248	247	1.0248
1951	248	249	254	256	252	251	250	253	246	245	250	242	1.0248
1952	246	250	251	254	254	249	248	248	245	245	242	250	1.0248
1953	245	247	253	258	253	252	251	249	249	247	246	245	1.0248
Mean Density	1.0246	1.0250	1.0253	1.0255	1.0253	1.0248	1.0247	1.0249	1.0246	1.0244	1.0244	1.0243	1.0248
Salinity	33.2	33.7	34.1	34.4	34.1	33.5	33.3	33.3	33.6	33.2	33.2	32.9	33.5
Max.	1.0258	1.0260	1.0261	1.0262	1.0260	1.0263	1.0260	1.0260	1.0258	1.0259	1.0257	1.0255	1.0263
Mean Max.	1.0254	1.0256	1.0258	1.0260	1.0258	1.0257	1.0256	1.0256	1.0254	1.0255	1.0253	1.0252	
Mean Min.	1.0217	1.0232	1.0232	1.0242	1.0233	1.0209	1.0192	1.0217	1.0208	1.0204	1.0204	1.0212	
Min.	1.0189	1.0219	1.0205	1.0221	1.0200	1.0148	1.0127	1.0178	1.0157	1.0149	1.0131	1.0184	1.0127
DAVAO, MINDANAO ISLAND, PHILIPPINE ISLANDS													
1947	—	—	—	—	—	1.0240	1.0224	1.0218	1.0228	1.0211	1.0225	1.0235	1.0253
1948	1.0253	1.0254	1.0258	1.0252	251	237	214	215	214	210	235	252	1.0237
1949	259	258	256	248	232	195	182	—	174	174	199	214	—

*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
DAVAO, MINDANAO ISLAND, PHILIPPINE ISLANDS - Continued															
1950	1.0223	1.0246	1.0221	1.0249	1.0208	1.0169	1.0141	1.0169	1.0152	1.0167	1.0211	1.0243	1.0200	1.0261	1.0068
1951	246	249	250	246	238	236	227	242	243	248	248	251	244	288	130
1952	253	252	253	253	221	221	236	249	249	249	249	249	249	266*	121*
1953	256	—	252	244	218	228	205	213	208	209	220	237	—	274*	130*
Mean Density	1.0248	1.0252	1.0248	1.0249	1.0230	1.0215	1.0203	1.0219	1.0200	1.0206	1.0225	1.0243	1.0228		
Salinity	33.5	34.0	33.5	33.6	31.1	29.1	27.6	29.7	27.2	28.0	30.4	32.8	30.8		
Max.	1.0264	1.0262	1.0267	1.0265	1.0274	1.0264	1.0263	1.0286	1.0257	1.0270	1.0270	1.0262			
Mean Max.	1.0260	1.0260	1.0261	1.0261	1.0261	1.0258	1.0256	1.0261	1.0255	1.0260	1.0260	1.0259			
Mean Min.	1.0206	1.0203	1.0196	1.0197	1.0130	1.0127	1.0135	1.0135	1.0136	1.0142	1.0142	1.0192			
Min.	1.0085	1.0123	1.0101	1.0150	1.0044	1.0068	1.0058	1.0040	1.0064	1.0057	1.0062	1.0099	1.0040		
JOLO, JOLO ISLAND, PHILIPPINE ISLANDS															
1947	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1948	1.0247	1.0249	1.0249	1.0251	1.0251	1.0251	1.0250	1.0250	1.0250	1.0250	1.0257	1.0244	1.0243	1.0265*	1.0229*
1949	249	249	244	249	252	252	254	256	256	256	249	246	245	257	232
1950	249	251	252	258	257	254	257	255	253	246	251	250	253	267	149
1951	253	253	251	254	256	255	255	253	253	248	250	250	253	269	159
1952	—	—	—	247	248	232	246	240	238	238	238	238	—	267*	155*
1953	251	248	246	245	238	241	244	242	244	245	247	247	245	288	184
Mean Density	1.0250	1.0248	1.0251	1.0251	1.0250	1.0248	1.0250	1.0248	1.0248	1.0245	1.0245	1.0245	1.0249		
Salinity	33.7	33.7	33.5	33.8	33.8	33.7	33.5	33.7	33.5	33.5	33.1	33.1	33.6		
Max.	1.0272	1.0267	1.0261	1.0262	1.0269	1.0265	1.0266	1.0265	1.0266	1.0266	1.0288	1.0267			
Mean Max.	1.0258	1.0258	1.0256	1.0258	1.0262	1.0260	1.0259	1.0258	1.0256	1.0260	1.0260	1.0257			
Mean Min.	1.0238	1.0225	1.0234	1.0237	1.0230	1.0232	1.0224	1.0232	1.0227	1.0210	1.0208	1.0212			
Min.	1.0226	1.0159	1.0223	1.0198	1.0163	1.0189	1.0155	1.0209	1.0204	1.0149	1.0171	1.0159	1.0149		

PUNTA ARENAS, MAGELLAN STRAIT, CHILE

		1.0226	1.0222	1.0225	1.0224	1.0227	1.0229	1.0230	---	1.0231*1.0209*
1944	---	---	---	---	214	217	221	224	223	233*
1947	---	---	---	218	220	221	223	224	225	229
1948	1.0223	1.0223	1.0222	1.0219	213	217	214	226	225	193*
1949	228	226	222	220	217	213	214	---	---	203
1950	---	---	227	221	217	220	224	226	227	232*
1951	225	227	228	227	225	222	225	225	227	198*
1952	226	227	227	224	220	221	221	222	222	215
1953	223	224	222	221	222	221	223	220	223	212
Mean Density	1.0225	1.0225	1.0224	1.0223	1.0221	1.0219	1.0220	1.0223	1.0224	237
Mean Salinity	30.4	30.4	30.3	30.2	29.9	29.7	29.8	30.2	30.3	234
Max.	1.0231	1.0232	1.0234	1.0231	1.0230	1.0228	1.0228	1.0233	1.0231	238
Mean Max.	1.0227	1.0229	1.0228	1.0227	1.0226	1.0226	1.0226	1.0227	1.0227	255
Mean Min.	1.0222	1.0221	1.0220	1.0218	1.0215	1.0209	1.0209	1.0212	1.0218	224
Min.	1.0220	1.0219	1.0219	1.0203	1.0209	1.0193	1.0198	1.0216	1.0217	224
										1.0223
										30.2
										30.7
										30.2
										1.0193

PUERTO MONTT, CHILE

		1.0238	1.0225	1.0235	1.0232	1.0229	1.0199	---	---	1.0251*1.0176*
1944	---	---	---	221	210	230	213	---	207	209*
1945	1.0189	1.0202	1.0220	1.0226	225	233	229	228	223	229
1946	206	213	225	233	221	236	230	224	224	225
1947	196	223	221	234	226	233	231	227	221	225
1948	198	221	233	234	222	232	231	227	221	227
1949	194	209	---	232	222	231	227	223	220	223
1950	203	---	229	233	---	230	235	236	231	236
1951	194	197	222	218	235	230	224	228	218	217
1952	185	203	224	217	235	232	238	243	227	228
1953	218	219	223	227	237	224	234	237	242	224
										223
										219
										223
										217
										247
										124
										253
										166
										142*

*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.	
PUERTO MONTT, CHILE - Continued																
PUERTO MONTT, CHILE - Continued																
Mean Density	1.0198	1.0207	1.0222	1.0226	1.0232	1.0228	1.0231	1.0233	1.0227	1.0222	1.0219	1.0195	1.0220			
Salinity	26.9	28.1	30.1	30.6	31.4	30.8	31.2	31.5	30.7	30.1	29.7	26.5	29.8			
Max.	1.0251	1.0243	1.0245	1.0251	1.0284	1.0253	1.0255	1.0253	1.0270	1.0251	1.0278	1.0251		1.0284		
Mean Max.	1.0230	1.0234	1.0240	1.0242	1.0248	1.0243	1.0245	1.0243	1.0245	1.0241	1.0242	1.0238				
Mean Min.	1.0170	1.0174	1.0196	1.0202	1.0204	1.0203	1.0206	1.0214	1.0207	1.0189	1.0183	1.0162				
Min.	1.0151	1.0124	1.0180	1.0187	1.0158	1.0159	1.0158	1.0186	1.0203	1.0171	1.0170	1.0142	1.0142	1.0124		
TALCAHUANO, CHILE																
1950	—	—	—	—	1.0256	1.0261	1.0242	1.0223	—	—	1.0239	1.0256	1.0257	—	1.0277*1.0212*	
1951	1.0254	1.0253	1.0256	1.0261	1.0242	1.0242	1.0242	1.0223	—	1.0227	1.0239	1.0256	255	255	—	306* 191*
1952	256	261	258	256	244	245	244	245	—	253	252	257	255	255	—	267* 172*
1953	261	258	256	258	241	216	202	220	221	210	251	—	—	—	271* 193*	
VALPARAISO, CHILE																
1944	—	—	—	—	1.0261	1.0262	1.0260	1.0261	1.0256	1.0263	1.0262	1.0259	—	—	1.0277*1.0240*	
1945	1.0263	1.0264	1.0267	261	258	261	259	259	258	260	263	266	1.0262	291	249	
1946	264	265	264	259	260	—	—	—	259	258	262	263	263	—	270* 247*	
1947	261	260	259	259	256	255	257	253	254	255	256	257	259	257	247	
1948	260	259	260	259	257	255	257	253	259	263	262	258	258	259	246	
1949	263	265	263	260	256	256	255	255	258	263	264	267	263	262	237	
1950	264	262	264	259	256	258	256	258	263	257	263	265	265	261	276	
1951	262	264	264	259	257	255	255	255	261	262	261	260	259	270	228	
1952	261	264	262	260	257	255	255	249	257	259	261	264	259	259	211	
1953	263	263	262	261	260	258	260	256	256	254	263	261	250	259	221	

Mean Density	1.0262	1.0263	1.0263	1.0260	1.0258	1.0257	1.0255	1.0258	1.0259	1.0262	1.0262	1.0260	1.0260
Salinity	35.3	35.4	35.4	35.0	35.0	34.8	34.6	34.4	34.8	34.9	35.3	35.3	35.0
Max.	1.0289	1.0280	1.0291	1.0278	1.0270	1.0270	1.0270	1.0271	1.0271	1.0277	1.0276	1.0276	1.0276
Mean Max.	1.0269	1.0268	1.0269	1.0266	1.0264	1.0264	1.0262	1.0262	1.0265	1.0266	1.0268	1.0268	1.0267
Mean Min.	1.0256	1.0257	1.0258	1.0255	1.0250	1.0251	1.0245	1.0250	1.0248	1.0255	1.0258	1.0251	1.0251
Min.	1.0237	1.0250	1.0256	1.0249	1.0238	1.0241	1.0211	1.0229	1.0221	1.0250	1.0252	1.0235	1.0211
CALDERA, CHILE													
Mean Density	1.0254	1.0253	1.0254	—	1.0258	1.0259	1.0259	1.0258	1.0257	1.0258	1.0259	1.0259	1.0247*
Salinity	258	257	255	1.0258	258	261	256	255	255	255	253	248	1.0256
Max.	1952	248	245	250	253	257	259	263	255	255	256	—	—
Mean Max.	1953	34.1	34.0	34.1	34.5	34.8	35.0	34.9	34.5	34.5	34.5	34.2	34.5
Mean Min.	1.0253	1.0252	1.0253	1.0256	1.0258	1.0260	1.0259	1.0256	1.0256	1.0256	1.0254	1.0256	1.0256
Min.	1.0243	1.0248	1.0247	1.0249	1.0251	1.0254	1.0255	1.0255	1.0253	1.0253	1.0252	1.0250	1.0249
Mean Density	1.0267	1.0262	1.0260	1.0264	1.0267	1.0266	1.0265	1.0262	1.0261	1.0260	1.0262	1.0262	1.0267
Salinity	34.1	34.0	34.1	34.5	34.8	35.0	34.9	34.5	34.5	34.5	34.5	34.2	34.5
Max.	1.0263	1.0255	1.0258	1.0260	1.0262	1.0262	1.0264	1.0264	1.0259	1.0260	1.0259	1.0258	1.0257
Mean Max.	1.0248	1.0243	1.0247	1.0249	1.0251	1.0254	1.0255	1.0255	1.0253	1.0253	1.0252	1.0250	1.0249
Mean Min.	1.0243	1.0243	1.0241	1.0245	1.0247	1.0253	1.0254	1.0253	1.0251	1.0250	1.0246	1.0244	1.0241
ANTOFAGASTA, CHILE													
Mean Density	1.0263	1.0259	1.0259	1.0257	1.0256	1.0256	1.0257	1.0258	1.0258	1.0258	1.0259	1.0259	1.0253*
Salinity	259	257	260	261	263	262	262	263	260	264	261	261	261
Max.	1947	1948	1948	1949	1949	1950	1950	1951	1951	1952	1952	1953	1.0261
Mean Max.	263	264	264	263	264	264	264	265	265	266	267	267	270
Mean Min.	260	262	263	264	265	266	266	267	267	268	269	269	273*
Min.	259	259	260	261	262	263	263	264	264	265	266	266	258*
Mean Density	1946	1947	1948	1949	1950	1951	1951	1952	1952	1953	1953	1953	1.0261
Salinity	259	257	260	261	263	262	262	263	262	264	263	263	243
Max.	259	257	260	261	263	262	262	263	262	264	263	263	258*
Mean Max.	263	264	264	263	265	264	264	265	265	266	267	267	258
Mean Min.	260	262	263	264	266	265	265	266	266	267	268	268	258
Min.	259	259	260	261	263	262	262	264	264	265	266	266	251

*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*

Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
ANTOFAGASTA, CHILE - Continued															
ARICA, CHILE															
Mean	1.0262	1.0262	1.0260	1.0260	1.0259	1.0260	1.0260	1.0261	1.0262	1.0262	1.0261	1.0261	1.0261	1.0261	1.0261
Density	35.3	35.3	35.0	35.0	35.0	35.0	34.9	35.0	35.0	35.0	35.1	35.3	35.3	35.3	35.1
Salinity															
Max.	1.0273	1.0272	1.0268	1.0268	1.0271	1.0272	1.0269	1.0270	1.0269	1.0272	1.0275	1.0274	1.0275	1.0275	1.0275
Mean Max.	1.0267	1.0266	1.0265	1.0265	1.0265	1.0264	1.0263	1.0264	1.0264	1.0264	1.0267	1.0268	1.0268	1.0268	1.0268
Mean Min.	1.0257	1.0257	1.0257	1.0257	1.0257	1.0256	1.0255	1.0255	1.0257	1.0256	1.0254	1.0258	1.0258	1.0258	1.0258
Min.	1.0249	1.0253	1.0253	1.0254	1.0254	1.0253	1.0255	1.0251	1.0254	1.0243	1.0254	1.0254	1.0254	1.0254	1.0243
MATARANI, PERU															
1944	—	—	1.0262	1.0262	1.0260	1.0264	1.0263	1.0264	1.0262	—	—	—	—	—	—
1945	1.0262	—	—	265	264	263	264	261	264	265	264	1.0264	—	—	—
1946	263	1.0264	264	263	263	260	261	264	271	272	267	265	1.0265	265	249*
1947	262	262	262	261	261	260	—	—	—	—	262	266	—	281	250
1948	267	265	264	264	266	266	264	263	260	261	262	262	264	274*	251*
1949	260	—	—	—	—	—	—	—	—	259	261	261	—	285	244*
														266*	256*

Observations for the year are incomplete: extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
TALARA, PERU															
1944															
1945	1.0260	1.0259	1.0264	1.0270	1.0272	271	273	265	264	262	263	267	267	279*	249*
1946	271	266	270	266	264	263	265	264	264	267	263	265	265	281*	257*
1947	270	271	274	268	264	264	264	264	267	267	263	264	264	295*	256*
1948	259	261	265	264	264	264	265	263	263	262	266	266	266	272	253
1949	265	266	265	267	267	267	265	264	263	264	264	264	265	274	253
1950	267	264	263	267	264	264	264	264	266	265	263	266	265	276	255
1951	259	256	269	268	262	262	266	266	267	268	264	266	266	279*	250*
1952	263	262	260	264	265	264	263	263	261	261	256	256	258	271*	247*
1953	256	253	251	255	259	260	259	261	259	259	255	259	259	270*	229*
Mean Density	1.0263	1.0262	1.0264	1.0266	1.0265	1.0265	1.0265	1.0265	1.0265	1.0264	1.0263	1.0263	1.0265	1.0264	
Salinity	35.4	35.3	35.5	35.8	35.8	35.7	35.7	35.7	35.7	35.5	35.7	35.4	35.7	35.5	
Max.	1.0280	1.0276	1.0281	1.0293	1.0277	1.0279	1.0276	1.0295	1.0274	1.0274	1.0273	1.0275	1.0275		
Mean Max.	1.0270	1.0269	1.0272	1.0275	1.0270	1.0271	1.0270	1.0272	1.0270	1.0270	1.0271	1.0270	1.0272		
Mean Min.	1.0257	1.0255	1.0255	1.0258	1.0260	1.0260	1.0260	1.0260	1.0259	1.0259	1.0258	1.0256	1.0260		
Min.	1.0249	1.0244	1.0235	1.0229	1.0255	1.0255	1.0253	1.0254	1.0254	1.0255	1.0253	1.0247	1.0254	1.0229	
LA LIBERTAD, ECUADOR															
1949	1.0254	1.0256	1.0257	—	—	1.0265	—	—	—	1.0256	1.0253	1.0252	—	1.0275*	1.0241*
1950	253	258	260	1.0266	1.0265	261	1.0258	1.0257	263	256	255	252	252	278	237
1951	250	250	262	265	264	261	262	269	254	251	254	256	256	300	245
1952	258	262	267	267	265	257	254	252	253	251	251	251	257	280	246
1953	252	253	241	252	255	254	257	257	261	261	—	—	—	266*	222*

Mean Density	1.0253	1.0256	1.0257	1.0262	1.0262	1.0258	1.0259	1.0257	1.0254	1.0253	1.0253	1.0257
Mean Salinity	34.1	34.5	34.6	35.3	35.3	35.0	34.8	34.9	34.6	34.2	34.1	34.6
Max. Density	1.0264	1.0274	1.0278	1.0276	1.0280	1.0275	1.0286	1.0300	1.0272	1.0265	1.0262	1.0260
Max. Salinity	34.2	34.5	34.6	35.3	35.3	35.0	34.8	34.9	34.6	34.2	34.1	34.6
Mean Max. Density	1.0260	1.0263	1.0266	1.0268	1.0270	1.0267	1.0269	1.0270	1.0263	1.0259	1.0259	1.0258
Mean Max. Salinity	34.2	34.5	34.6	35.3	35.3	35.0	34.8	34.9	34.6	34.2	34.1	34.6
Mean Min. Density	1.0248	1.0247	1.0248	1.0255	1.0256	1.0255	1.0255	1.0251	1.0251	1.0253	1.0249	1.0247
Mean Min. Salinity	34.1	34.4	34.5	35.2	35.2	35.0	34.8	34.9	34.6	34.2	34.1	34.6
Min. Density	1.0245	1.0241	1.0222	1.0243	1.0252	1.0248	1.0248	1.0249	1.0247	1.0250	1.0246	1.0237
Min. Salinity	34.1	34.4	34.5	35.2	35.2	35.0	34.8	34.9	34.6	34.2	34.1	34.6
TUMACO, COLOMBIA												
1951	---	---	---	1.0227	1.0226	1.0237	1.0219	1.0221	1.0221	1.0228	1.0229	1.0225
1952	1.0227	1.0227	1.0227	1.0227	1.0227	1.0227	1.0227	1.0227	1.0227	1.0227	1.0225	1.0225
1953	222	210	223	225	196	214	214	219	233	227	207	216
Mean Density	1.0224	1.0218	1.0230	1.0222	1.0230	1.0208	1.0218	1.0224	1.0231	1.0227	1.0216	1.0221
Mean Salinity	30.3	29.5	31.1	30.1	30.1	28.2	29.5	30.3	30.3	31.2	30.7	29.9
Max. Density	1.0237	1.0240	1.0245	1.0251	1.0245	1.0238	1.0233	1.0238	1.0236	1.0234	1.0237	1.0234
Max. Salinity	30.3	29.5	31.1	30.1	30.1	28.2	29.5	30.3	30.3	31.2	30.7	29.9
Mean Max. Density	1.0236	1.0236	1.0250	1.0244	1.0244	1.0232	1.0235	1.0236	1.0234	1.0233	1.0229	1.0226
Mean Max. Salinity	30.3	29.5	31.1	30.1	30.1	28.2	29.5	30.3	30.3	31.2	30.7	29.9
Mean Min. Density	1.0194	1.0202	1.0206	1.0152	1.0168	1.0168	1.0175	1.0175	1.0192	1.0225	1.0222	1.0196
Mean Min. Salinity	29.5	30.1	31.1	30.1	30.1	28.2	29.5	30.3	30.3	31.2	30.7	29.9
Min. Density	1.0173	1.0186	1.0186	1.0138	1.0138	1.0138	1.0138	1.0147	1.0180	1.0224	1.0222	1.0188
Min. Salinity	29.5	30.1	31.1	30.1	30.1	28.2	29.5	30.3	30.3	31.2	30.7	29.9
BUENAVENTURA, COLOMBIA												
1953	1.0108	---	---	---	1.0100	1.0109	1.0111	1.0111	1.0093	1.0072	1.0064	1.0073
NAOS ISLAND, CANAL ZONE												
1949	---	---	---	---	1.0254	1.0228	1.0221	1.0221	1.0209	1.0196	1.0203	1.0209
1950	1.0236	1.0250	1.0251	1.0258	238	215	214	211	203	190	199	212
1951	230	242	258	258	244	237	220	231	214	218	214	221
1952	239	254	258	255	248	229	226	227	205	208	199	213
1953	227	239	256	256	236	229	227	229	214	205	210	209
NAOS ISLAND, CANAL ZONE												
1950	1.0236	1.0250	1.0251	1.0258	238	215	214	211	203	190	199	212
1951	230	242	258	258	244	237	220	231	214	218	214	221
1952	239	254	258	255	248	229	226	227	205	208	199	213
1953	227	239	256	256	236	229	227	229	214	205	210	209
NAOS ISLAND, CANAL ZONE												
1950	1.0236	1.0250	1.0251	1.0258	238	215	214	211	203	190	199	212
1951	230	242	258	258	244	237	220	231	214	218	214	221
1952	239	254	258	255	248	229	226	227	205	208	199	213
1953	227	239	256	256	236	229	227	229	214	205	210	209

*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
NAOS ISLAND, CANAL ZONE - Continued															
PUERTO ARMUELLES, PANAMA															
PUNTARENAS, COSTA RICA															
Mean	1.0233	1.0246	1.0256	1.0257	1.0244	1.0228	1.0222	1.0209	1.0203	1.0205	1.0213	1.0228	1.0224	1.0219	1.0228
Density	31.5	33.2	34.5	34.6	32.9	30.8	30.1	30.3	28.4	27.6	27.8	28.9	28.7	28.9	30.8
Salinity															
Max.	1.0258	1.0262	1.0264	1.0267	1.0249	1.0237	1.0239	1.0229	1.0233	1.0236	1.0241	1.0267	1.0267	1.0267	1.0267
Mean Max.	1.0248	1.0258	1.0261	1.0260	1.0258	1.0242	1.0233	1.0236	1.0221	1.0222	1.0224	1.0230	1.0230	1.0230	1.0230
Mean Min.	1.0218	1.0238	1.0249	1.0251	1.0224	1.0212	1.0189	1.0205	1.0191	1.0174	1.0183	1.0179	1.0179	1.0179	1.0179
Min.	1.0207	1.0228	1.0239	1.0239	1.0248	1.0209	1.0186	1.0154	1.0168	1.0175	1.0127	1.0148	1.0127	1.0127	1.0127
Mean	1.0236	1.0239	1.0243	1.0247	1.0250	1.0245	1.0238	1.0237	1.0237	1.0236	1.0234	1.0239	1.0239	1.0239	1.0239
Density	31.9	32.3	32.8	33.3	33.7	33.1	32.1	32.0	32.0	31.9	31.6	31.1	31.1	31.1	32.3
Salinity															
Max.	1.0245	1.0251	1.0255	1.0260	1.0259	1.0258	1.0255	1.0249	1.0253	1.0253	1.0240	1.0260	1.0260	1.0260	1.0260
Mean Max.	1.0243	1.0244	1.0248	1.0252	1.0258	1.0257	1.0251	1.0247	1.0246	1.0246	1.0237	1.0237	1.0237	1.0237	1.0237
Mean Min.	1.0227	1.0234	1.0237	1.0242	1.0231	1.0229	1.0230	1.0229	1.0231	1.0216	1.0220	1.0221	1.0221	1.0221	1.0221
Min.	1.0224	1.0222	1.0222	1.0229	1.0220	1.0221	1.0225	1.0225	1.0231	1.0212	1.0216	1.0219	1.0219	1.0219	1.0219
Mean	1.0204	1.0205	1.0205	1.0205	1.0205	1.0210	1.0226	1.0231	1.0212	1.0218	1.0224	1.0224	1.0224	1.0224	1.0224
Density	228	230	230	230	237	230	224	226	225	214	223	226	227	243	244
Salinity															
Max.	227	226	237	231	241	231	227	220	217	215	219	223	226	273	193
Mean Max.	226	239	234	237	240	235	232	232	220	215	215	224	229	253	199
Mean Min.	226	224	221	227	228	223	224	222	190	219	219	220	243	165	165
Min.	218	220	227	238	235	218	221	225	230	222	222	224	225	248	188

Mean Density	1.0222	1.0224	1.0226	1.0228	1.0231	1.0224	1.0226	1.0222	1.0211	1.0219	1.0223	1.0224
Salinity	30.1	30.3	30.6	30.8	31.2	30.3	30.6	30.6	30.1	28.6	29.7	30.2
Max.	1.0241	1.0250	1.0273	1.0250	1.0265	1.0245	1.0245	1.0247	1.0244	1.0243	1.0243	1.0243
Mean Max.	1.0233	1.0236	1.0242	1.0240	1.0243	1.0242	1.0239	1.0241	1.0236	1.0228	1.0235	1.0235
Mean Min.	1.0207	1.0212	1.0211	1.0218	1.0220	1.0205	1.0208	1.0206	1.0185	1.0201	1.0207	1.0207
Min.	1.0196	1.0194	1.0201	1.0195	1.0196	1.0188	1.0200	1.0193	1.0200	1.0186	1.0198	1.0144
1.0127												
SAN JUAN DEL SUR, NICARAGUA												
Mean Density	1.0254	1.0255	1.0259	1.0260	1.0256	1.0249	1.0248	1.0258	1.0249	1.0259	1.0262	1.0220
Salinity	25.9	24.6	24.9	26.4	26.4	24.9	25.7	25.8	25.5	25.4	25.8	282*
Max.	25.9	26.7	26.6	26.3	26.6	26.1	25.0	26.1	25.4	26.2	25.1	259
Mean Max.	26.7	25.5	25.0	26.1	25.4	24.9	25.3	25.1	25.9	24.9	25.6	286
Mean Min.	25.5	24.9	24.8	25.1	25.1	24.9	25.3	25.1	25.4	25.1	25.1	272*
Min.	24.9	24.2	24.8	25.1	25.1	24.4	25.7	25.7	25.4	25.1	25.1	217*
Mean Density	1.0259	1.0254	1.0258	1.0261	1.0255	1.0250	1.0254	1.0255	1.0257	1.0252	1.0254	1.0256
Salinity	34.9	34.2	34.8	35.1	35.1	34.4	33.7	34.2	34.4	34.6	34.0	34.5
Max.	1.0284	1.0280	1.0281	1.0286	1.0286	1.0268	1.0274	1.0277	1.0280	1.0269	1.0275	1.0286
Mean Max.	1.0271	1.0266	1.0273	1.0274	1.0267	1.0260	1.0266	1.0273	1.0274	1.0268	1.0269	1.0279
Mean Min.	1.0246	1.0242	1.0246	1.0250	1.0241	1.0234	1.0239	1.0240	1.0240	1.0229	1.0235	1.0240
Min.	1.0243	1.0234	1.0240	1.0242	1.0242	1.0217	1.0231	1.0231	1.0235	1.0220	1.0234	1.0238
1.0217												
LA UNIÓN, EL SALVADOR												
Mean Density	1949	—	—	—	—	—	—	—	1.0199	1.0174	1.0218	1.0238
Salinity	34.0	35.3	36.0	35.9	34.1	28.0	27.2	29.8	24.6	24.2	29.9	31.0
Max.	1.0255	1.0263	1.0268	—	1.0271	1.0214	1.0195	1.0234	170	—	222	245
Mean Max.	—	—	269	1.0270	262	240	207	214	171	170	220	238
Mean Min.	25.4	27.1	26.6	26.7	24.4	176	195	201	179	185	225	230
Min.	24.6	25.1	—	265	236	193	204	230	183	179	218	245
Mean Density	1.0252	1.0262	1.0268	1.0267	1.0253	1.0206	1.0200	1.0220	1.0180	1.0177	1.0221	1.0229
Salinity	34.0	35.3	36.0	35.9	34.1	28.0	27.2	29.8	24.6	24.2	29.9	32.3
Max.	1.0278	1.0291	1.0276	1.0275	1.0284	1.0274	1.0238	1.0243	1.0241	1.0215	1.0243	1.0259
Mean Max.	1.0274	1.0273	1.0273	1.0274	1.0274	1.0248	1.0225	1.0237	1.0219	1.0209	1.0237	1.0254
Mean Min.	1.0239	1.0238	1.0260	1.0260	1.0224	1.0164	1.0158	1.0158	1.0141	1.0138	1.0185	1.0225
Min.	1.0223	1.0208	1.0254	1.0253	1.0171	1.0127	1.0142	1.0144	1.0133	1.0134	1.0157	1.0208
1.0127												

*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
SAN JOSÉ, GUATEMALA															
ACAPULCO, MEXICO															
1949	---	---	---	---	---	---	---	---	---	---	---	1.0245	1.0254	---	1.0258*1.0245*
1950	1.0256	1.0258	1.0260	1.0262	1.0260	1.0249	1.0240	1.0247	1.0235	1.0235	1.0230	1.0246	248	253	1.0250
1951	255	257	260	258	256	252	252	245	237	242	220	240	238	240	243
1952	251	254	255	257	256	245	245	237	236	236	220	240	220	246	246
1953	250	251	253	256	252	248	246	248	239	239	228	246	228	246	246
Mean Density	1.0253	1.0255	1.0257	1.0258	1.0256	1.0248	1.0241	1.0246	1.0237	1.0230	1.0242	1.0248	1.0248	1.0248	1.0248
Salinity	34.1	34.4	34.6	34.8	34.5	33.5	32.5	32.5	33.2	32.0	31.1	32.7	32.7	33.5	33.5
Max.	1.0261	1.0263	1.0264	1.0268	1.0263	1.0260	1.0254	1.0258	1.0250	1.0257	1.0262	1.0262	1.0258	1.0268	1.0268
Mean Max.	1.0256	1.0258	1.0260	1.0262	1.0260	1.0258	1.0250	1.0254	1.0247	1.0247	1.0255	1.0255	1.0253	1.0253	1.0253
Mean Min.	1.0248	1.0249	1.0252	1.0255	1.0247	1.0232	1.0232	1.0227	1.0219	1.0209	1.0230	1.0230	1.0242	1.0242	1.0242
Min.	1.0243	1.0243	1.0250	1.0252	1.0242	1.0216	1.0216	1.0212	1.0218	1.0194	1.0225	1.0225	1.0233	1.0194	1.0194
SALINA CRUZ, MEXICO															
1952	---	---	---	---	1.0256	1.0246	1.0248	1.0246	1.0241	1.0249	1.0250	1.0251	1.0254	---	1.0262*1.0220*
1953	1.0256	1.0258	---	---	---	---	251	255	255	252	252	258	262	262	278*
ACAPULCO, MEXICO															
1950	---	---	---	---	1.0252	1.0248	1.0252	1.0248	1.0241	1.0249	1.0250	1.0251	1.0254	---	1.0261*1.0219*
1951	1.0256	1.0258	1.0257	1.0258	1.0257	257	244	252	254	246	248	251	251	1.0252	1.0267
1952	254	254	257	257	256	249	248	244	241	238	247	248	247	248	214
1953	250	252	257	257	259	255	249	248	247	244	252	252	252	252	200
Mean Density	1.0253	1.0255	1.0257	1.0258	1.0257	1.0253	1.0247	1.0249	1.0242	1.0244	1.0250	1.0251	1.0251	1.0251	1.0251
Salinity	34.1	34.4	34.6	34.6	34.1	33.3	33.6	33.6	32.7	32.9	33.7	33.8	33.8	33.8	33.8
Max.	1.0258	1.0267	1.0261	1.0263	1.0262	1.0267	1.0261	1.0258	1.0262	1.0258	1.0254	1.0257	1.0267	1.0267	1.0267
Mean Max.	1.0256	1.0261	1.0260	1.0262	1.0261	1.0262	1.0256	1.0256	1.0255	1.0255	1.0252	1.0254	1.0255	1.0255	1.0255
Mean Min.	1.0251	1.0251	1.0253	1.0253	1.0254	1.0233	1.0229	1.0236	1.0217	1.0226	1.0246	1.0247	1.0247	1.0247	1.0247
Min.	1.0248	1.0249	1.0249	1.0252	1.0251	1.0214	1.0214	1.0234	1.0193	1.0200	1.0240	1.0243	1.0243	1.0243	1.0243

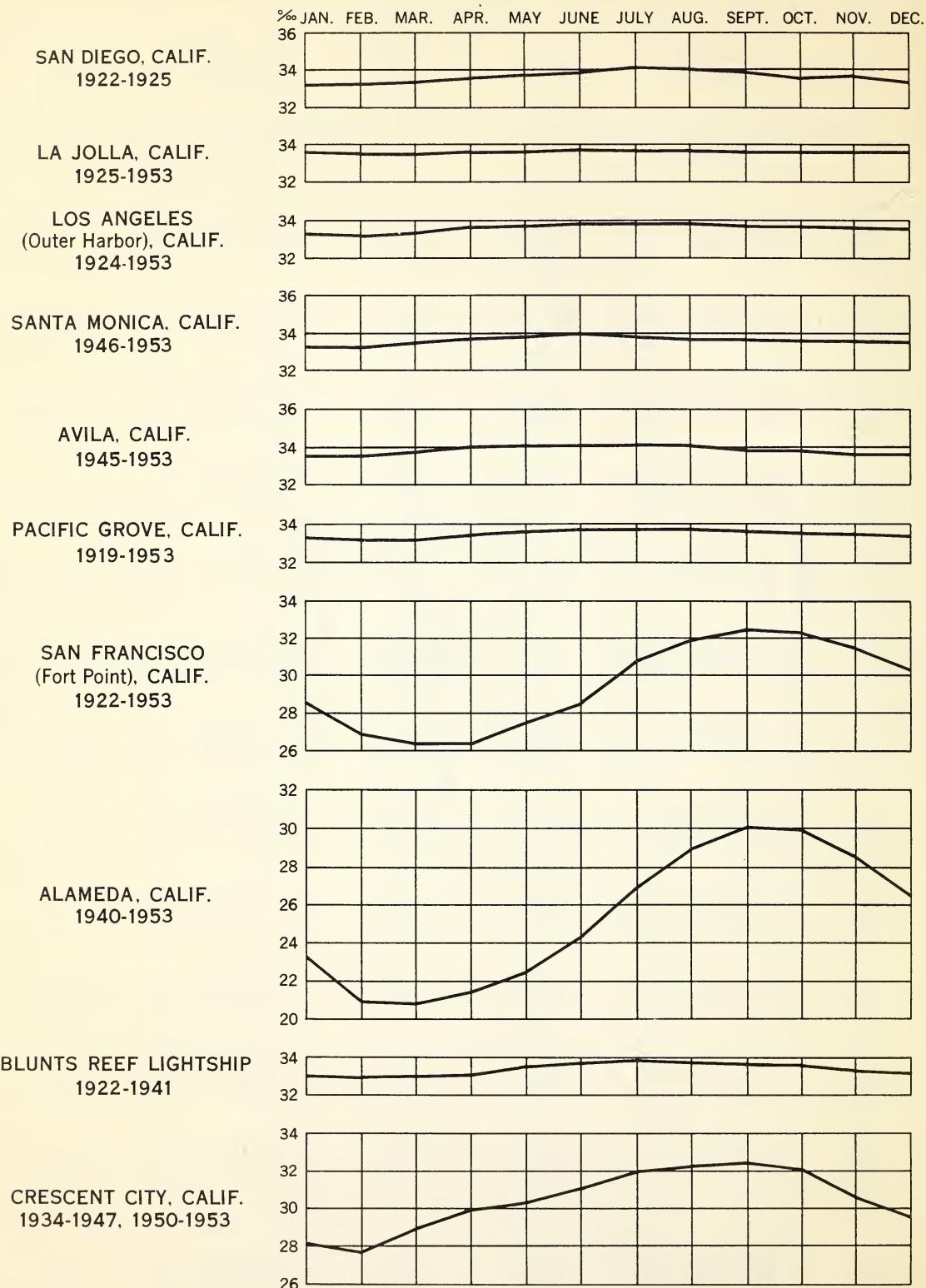
MAZATLÁN, MEXICO

1953	1.0258	1.0259	1.0260	1.0261	1.0264	1.0266	1.0258	1.0257	1.0243	1.0256	1.0261	1.0260	1.0259	1.0273	1.0077
GUAYMAS, MEXICO															
1950															
1951	1.0268	1.0267	1.0270	1.0270	1.0276	1.0280	1.0269	1.0261	1.0271	1.0273	1.0271	1.0269	1.0272	1.0248*	
1952	273	271	267	267	273	278	280	270	271	272	272	272	306	232	
1953	267	265	262	271	263	267	273	271	267	274	264	266	271	293	
Mean Density Salinity	1.0269	1.0268	1.0266	1.0269	1.0271	1.0275	1.0276	1.0267	1.0270	1.0273	1.0269	1.0270	1.0270	251*	
Max.	36.2	36.0	35.8	36.2	36.4	37.0	37.1	35.9	36.3	36.7	36.2	36.2	36.3	1.0306	
Mean Max.	1.0293	1.0279	1.0277	1.0284	1.0293	1.0306	1.0297	1.0303	1.0291	1.0293	1.0282	1.0290			
Mean Min.	1.0281	1.0275	1.0275	1.0276	1.0281	1.0288	1.0285	1.0284	1.0280	1.0285	1.0276	1.0281			
Min.	1.0261	1.0261	1.0259	1.0258	1.0262	1.0264	1.0267	1.0247	1.0263	1.0265	1.0259	1.0259	1.0232	1.0254	
1952	—	—	—	—	1.0268	—	1.0270	1.0268	1.0269	1.0268	—	—	—	1.0278* 1.0263*	
1953	—	—	1.0269	1.0270	271	1.0270	274	273	275	—	—	—	—	286* 258*	
PUERTO PEÑASCO, MEXICO															
1950															
1951	1.0263	1.0264	1.0270	1.0272	1.0270	1.0271	—	1.0270	1.0266	—	1.0267	1.0264	1.0263	1.0260*	
1952	265	267	270	268	271	268	272	265	267	267	263	260	1.0267	253	
1953	—	—	274	275	276	275	276	274	275	275	273	272	—	281* 256*	
Mean Density Salinity	1.0264	1.0266	1.0271	1.0272	1.0271	1.0272	1.0269	1.0269	1.0269	1.0269	1.0265	1.0269	1.0269	263*	
Max.	35.5	35.8	36.4	36.6	36.6	36.4	36.6	36.6	36.2	36.2	36.2	35.9	35.7	36.2	
Mean Max.	1.0272	1.0275	1.0280	1.0286	1.0282	1.0285	1.0302	1.0279	1.0288	1.0282	1.0281	1.0302			
Mean Min.	1.0270	1.0273	1.0278	1.0281	1.0280	1.0279	1.0280	1.0273	1.0278	1.0275	1.0272	1.0261			
Min.	1.0261	1.0262	1.0266	1.0265	1.0264	1.0263	1.0263	1.0261	1.0264	1.0264	1.0262	1.0261	1.0253	1.0253	

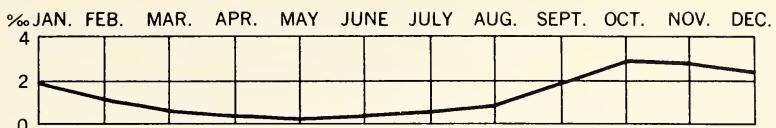
*Observations for the year are incomplete; extremes are for the months shown.

Mean Salinity Curves

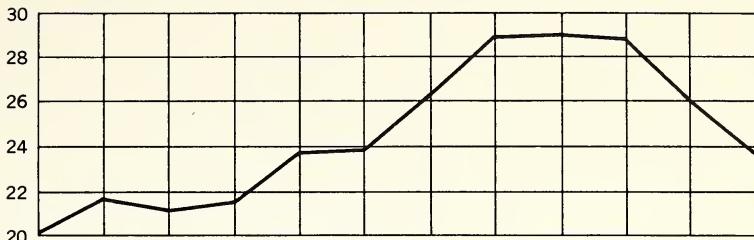
Monthly mean salinities in parts per thousand are presented graphically to show the seasonal variation.



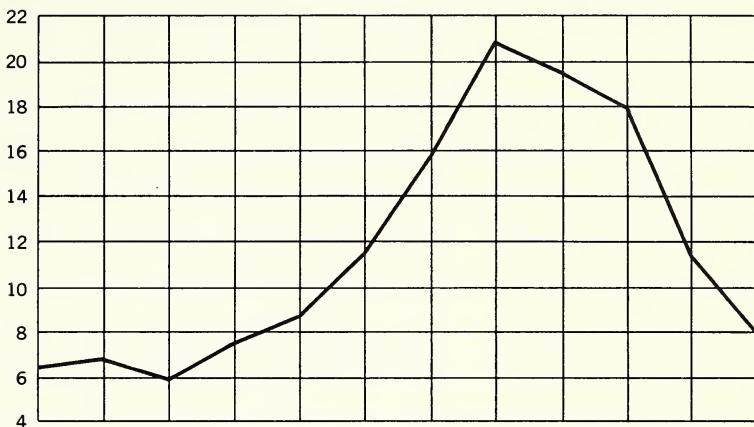
ASTORIA
(Tongue Point), ORE.
1925-1953



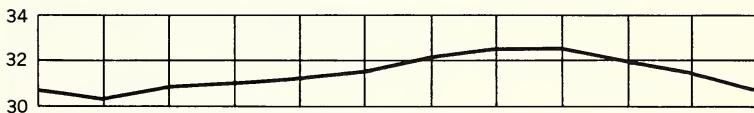
TOKELAND, WASH.
1935-1939



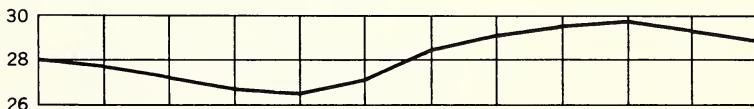
RAYMOND, WASH.
1935-1942



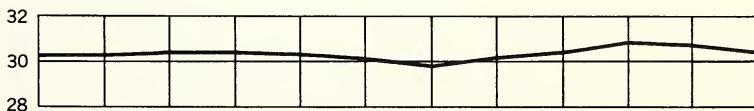
NEAH BAY, WASH.
1936-1953



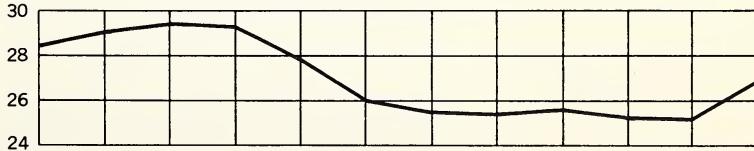
SEATTLE (Elliott Bay), WASH.
1922-1953



FRIDAY HARBOR, WASH.
1935-1952

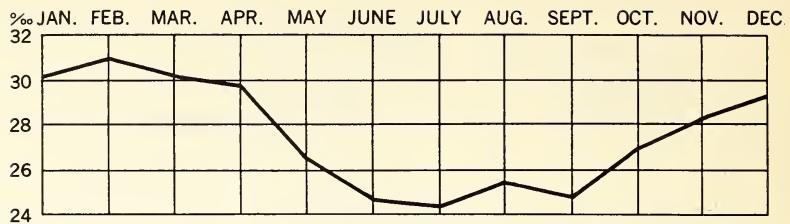


KETCHIKAN, ALASKA
1922-1953

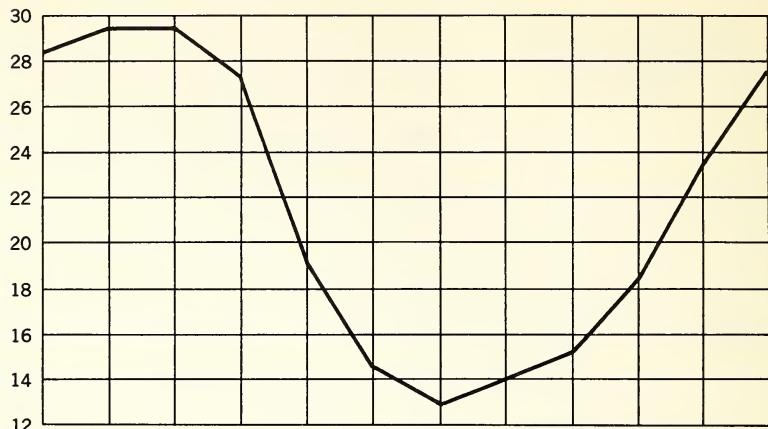


Mean Salinity Curves - *Continued*

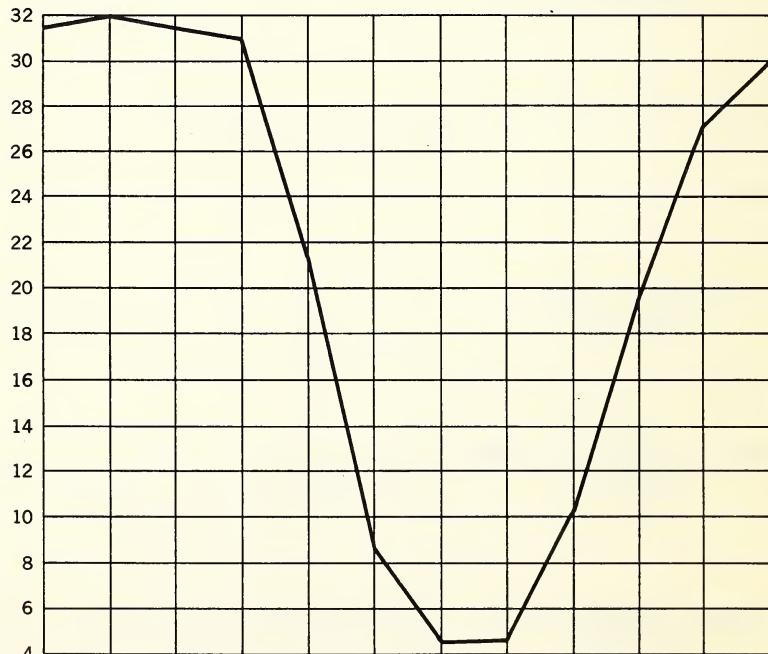
SITKA, ALASKA
1924-1925, 1943-1953



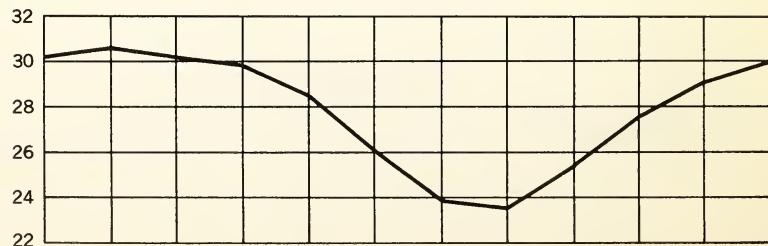
JUNEAU, ALASKA
1937-1953

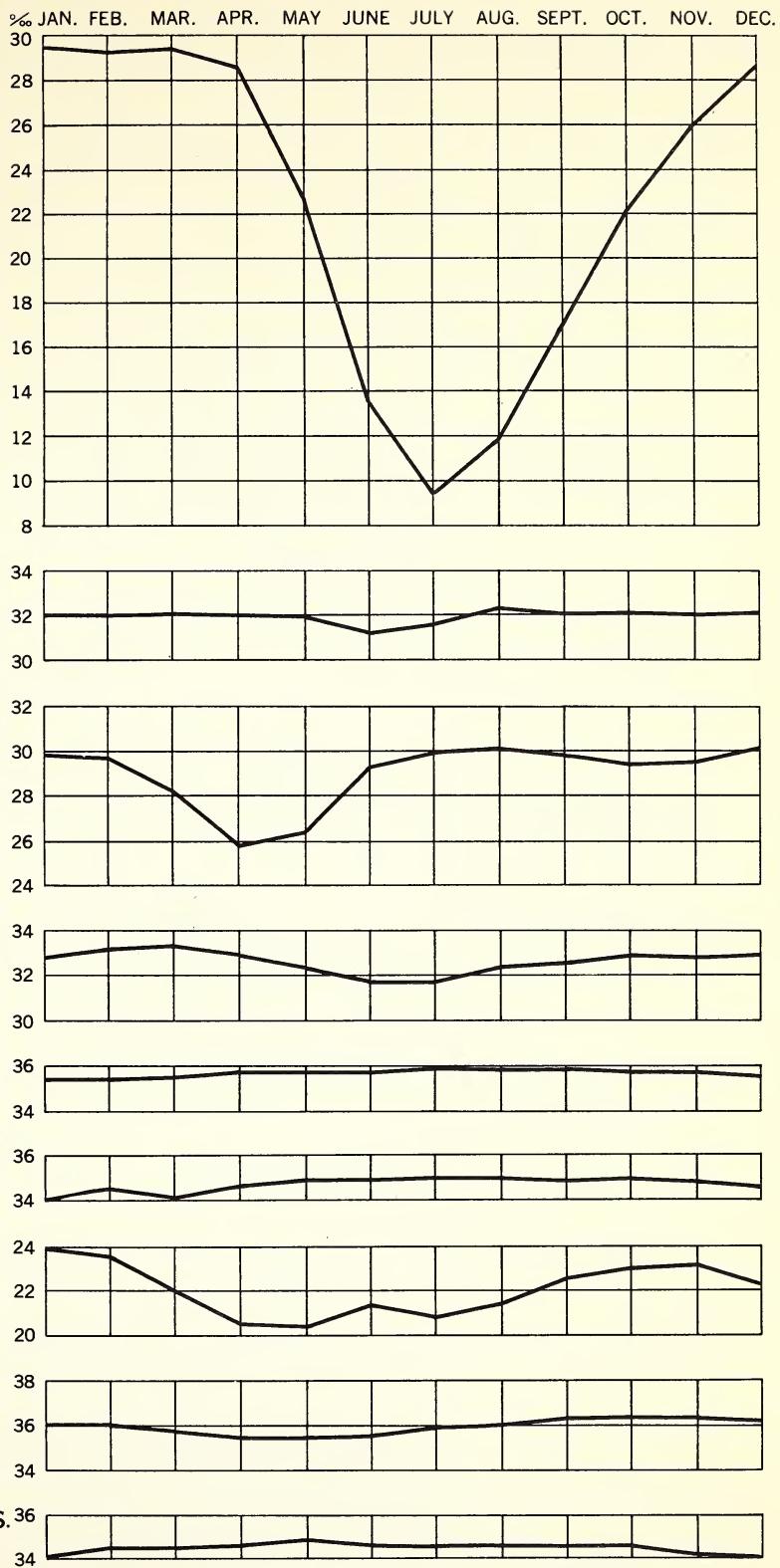


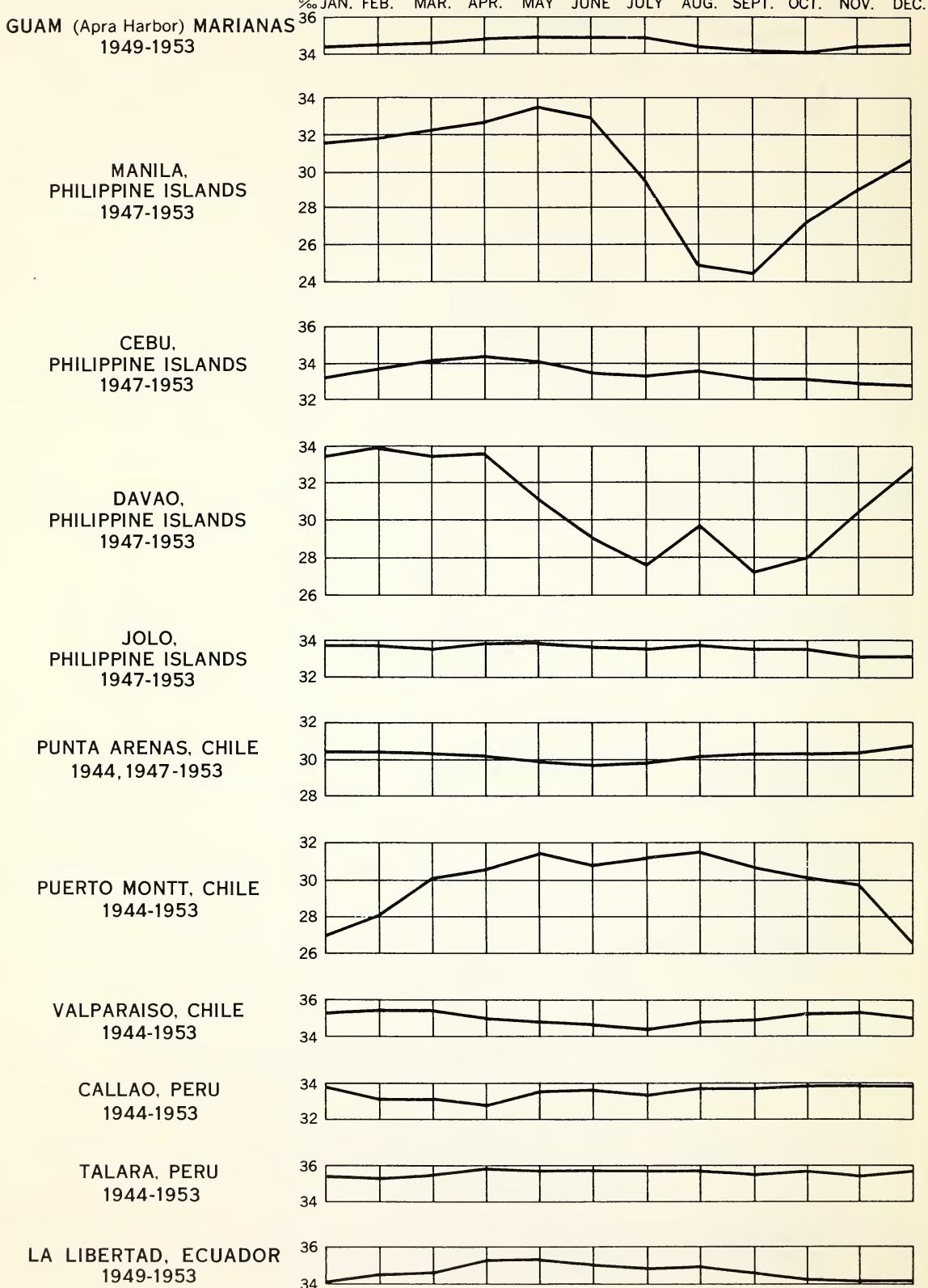
SKAGWAY, ALASKA
1944-1953



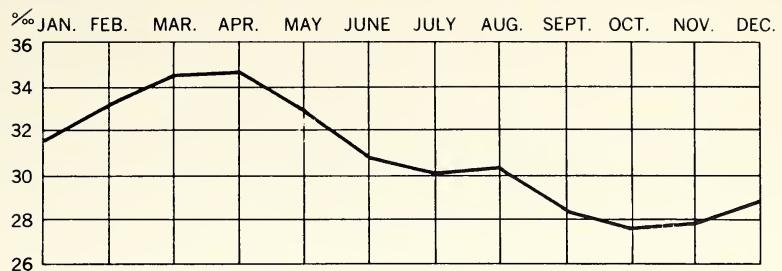
YAKUTAT, ALASKA
1941-1953



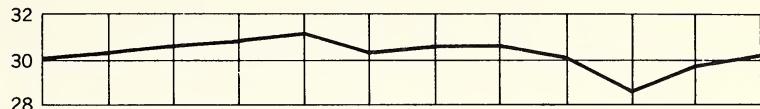
Mean Salinity Curves - *Continued*



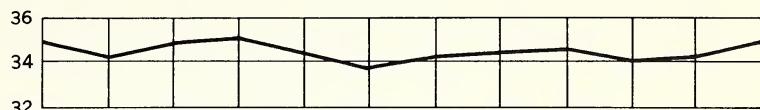
NAOS ISLAND, CANAL ZONE
1949 - 1953



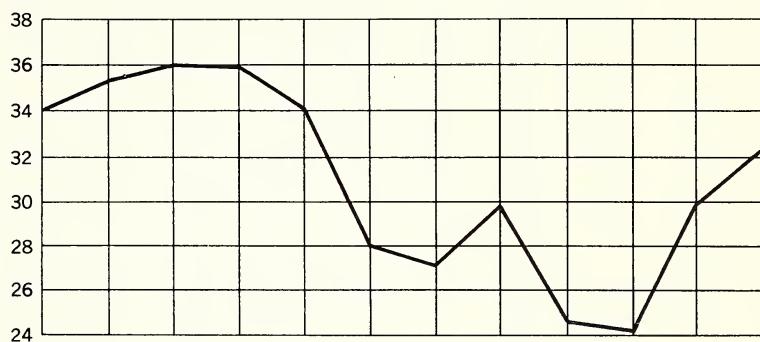
PUNTARENAS, COSTA RICA
1948 - 1953



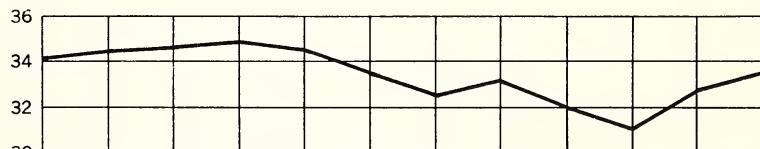
SAN JUAN DEL SUR,
NICARAGUA
1950 - 1953



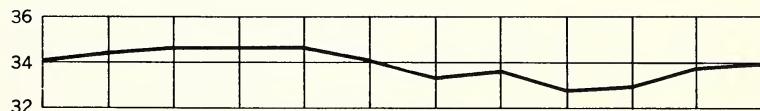
LA UNIÓN, EL SALVADOR
1949 - 1953



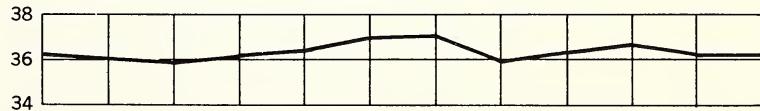
SAN JOSÉ, GUATEMALA
1949 - 1953



ACAPULCO, MEXICO
1950 - 1953



GUAYMAS, MEXICO
1950 - 1953



LA PAZ, MEXICO
1950 - 1953

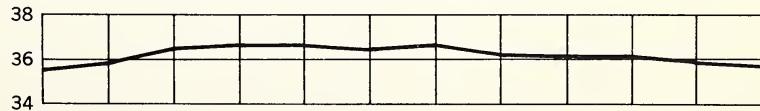


Table 2. Corresponding Densities and Salinities
(Density at 15°C. -- Salinity in parts per 1000)

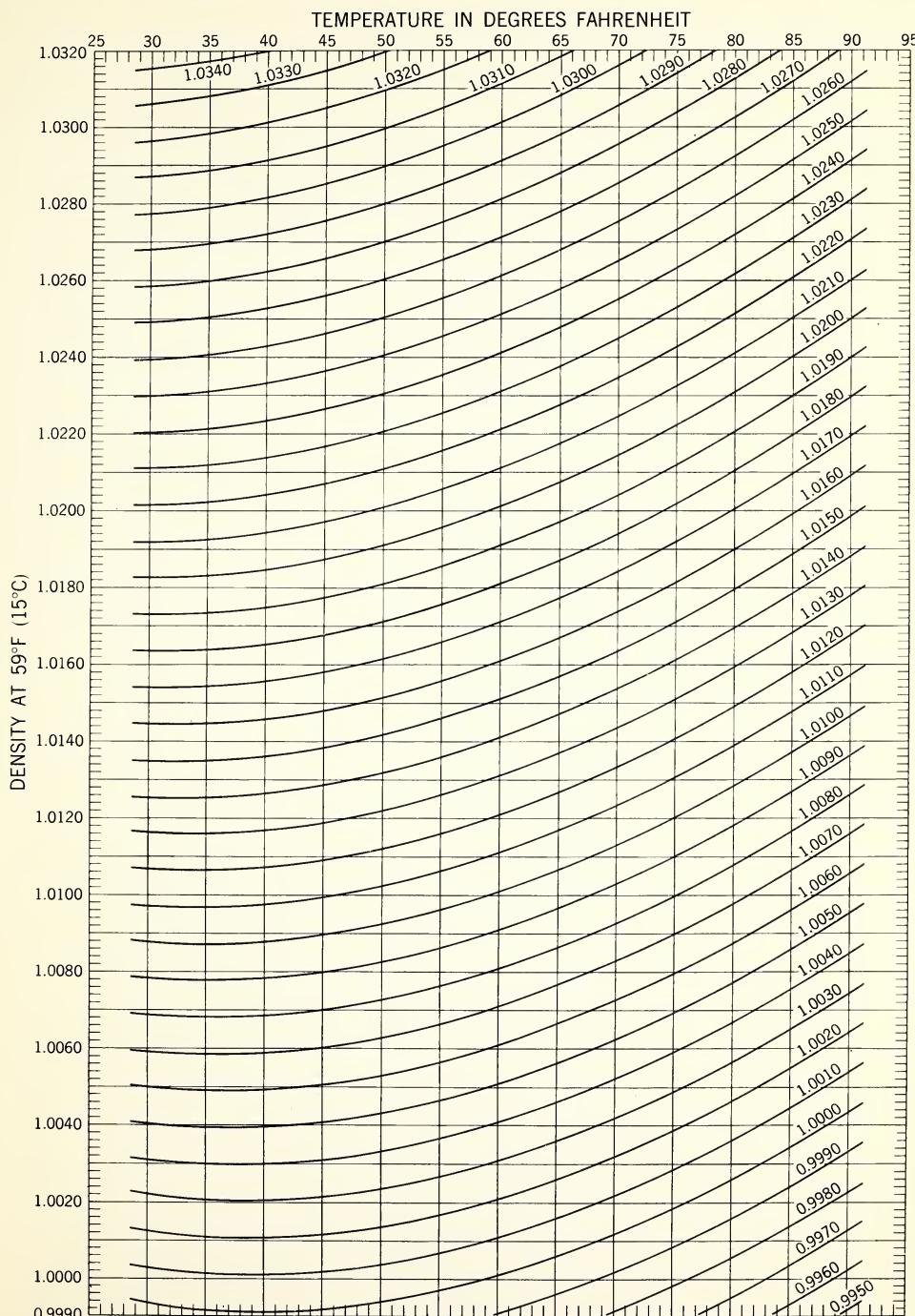
Dens- ity	Sal- inity										
0.9991	0.0	1.0046	7.1	1.0101	14.2	1.0156	21.4	1.0211	28.6	1.0266	35.8
0.9992	0.0	1.0047	7.2	1.0102	14.4	1.0157	21.6	1.0212	28.8	1.0267	35.9
0.9993	0.2	1.0048	7.3	1.0103	14.5	1.0158	21.7	1.0213	28.9	1.0268	36.0
0.9994	0.3	1.0049	7.5	1.0104	14.6	1.0159	21.8	1.0214	29.0	1.0269	36.2
0.9995	0.4	1.0050	7.6	1.0105	14.8	1.0160	22.0	1.0215	29.1	1.0270	36.3
0.9996	0.6	1.0051	7.7	1.0106	14.9	1.0161	22.1	1.0216	29.3	1.0271	36.4
0.9997	0.7	1.0052	7.9	1.0107	15.0	1.0162	22.2	1.0217	29.4	1.0272	36.6
0.9998	0.8	1.0053	8.0	1.0108	15.2	1.0163	22.4	1.0218	29.5	1.0273	36.7
0.9999	0.9	1.0054	8.1	1.0109	15.3	1.0164	22.5	1.0219	29.7	1.0274	36.8
1.0000	1.1	1.0055	8.2	1.0110	15.4	1.0165	22.6	1.0220	29.8	1.0275	37.0
1.0001	1.2	1.0056	8.4	1.0111	15.6	1.0166	22.7	1.0221	29.9	1.0276	37.1
1.0002	1.3	1.0057	8.5	1.0112	15.7	1.0167	22.9	1.0222	30.1	1.0277	37.2
1.0003	1.5	1.0058	8.6	1.0113	15.8	1.0168	23.0	1.0223	30.2	1.0278	37.3
1.0004	1.6	1.0059	8.8	1.0114	16.0	1.0169	23.1	1.0224	30.3	1.0279	37.5
1.0005	1.7	1.0060	8.9	1.0115	16.1	1.0170	23.3	1.0225	30.4	1.0280	37.6
1.0006	1.9	1.0061	9.0	1.0116	16.2	1.0171	23.4	1.0226	30.6	1.0281	37.7
1.0007	2.0	1.0062	9.2	1.0117	16.3	1.0172	23.5	1.0227	30.7	1.0282	37.9
1.0008	2.1	1.0063	9.3	1.0118	16.5	1.0173	23.7	1.0228	30.8	1.0283	38.0
1.0009	2.2	1.0064	9.4	1.0119	16.6	1.0174	23.8	1.0229	31.0	1.0284	38.1
1.0010	2.4	1.0065	9.6	1.0120	16.7	1.0175	23.9	1.0230	31.1	1.0285	38.2
1.0011	2.5	1.0066	9.7	1.0121	16.9	1.0176	24.1	1.0231	31.2	1.0286	38.4
1.0012	2.6	1.0067	9.8	1.0122	17.0	1.0177	24.2	1.0232	31.4	1.0287	38.5
1.0013	2.8	1.0068	9.9	1.0123	17.1	1.0178	24.3	1.0233	31.5	1.0288	38.6
1.0014	2.9	1.0069	10.1	1.0124	17.3	1.0179	24.4	1.0234	31.6	1.0289	38.8
1.0015	3.0	1.0070	10.2	1.0125	17.4	1.0180	24.6	1.0235	31.8	1.0290	38.9
1.0016	3.2	1.0071	10.3	1.0126	17.5	1.0181	24.7	1.0236	31.9	1.0291	39.0
1.0017	3.3	1.0072	10.5	1.0127	17.7	1.0182	24.8	1.0237	32.0	1.0292	39.2
1.0018	3.4	1.0073	10.6	1.0128	17.8	1.0183	25.0	1.0238	32.1	1.0293	39.3
1.0019	3.5	1.0074	10.7	1.0129	17.9	1.0184	25.1	1.0239	32.3	1.0294	39.4
1.0020	3.7	1.0075	10.8	1.0130	18.0	1.0185	25.2	1.0240	32.4	1.0295	39.6
1.0021	3.8	1.0076	11.0	1.0131	18.2	1.0186	25.4	1.0241	32.5	1.0296	39.7
1.0022	3.9	1.0077	11.1	1.0132	18.3	1.0187	25.5	1.0242	32.7	1.0297	39.8
1.0023	4.1	1.0078	11.2	1.0133	18.4	1.0188	25.6	1.0243	32.8	1.0298	39.9
1.0024	4.2	1.0079	11.4	1.0134	18.6	1.0189	25.8	1.0244	32.9	1.0299	40.1
1.0025	4.3	1.0080	11.5	1.0135	18.7	1.0190	25.9	1.0245	33.1	1.0300	40.2
1.0026	4.5	1.0081	11.6	1.0136	18.8	1.0191	26.0	1.0246	33.2	1.0301	40.3
1.0027	4.6	1.0082	11.8	1.0137	19.0	1.0192	26.1	1.0247	33.3	1.0302	40.4
1.0028	4.7	1.0083	11.9	1.0138	19.1	1.0193	26.3	1.0248	33.5	1.0303	40.6
1.0029	4.8	1.0084	12.0	1.0139	19.2	1.0194	26.4	1.0249	33.6	1.0304	40.7
1.0030	5.0	1.0085	12.2	1.0140	19.3	1.0195	26.5	1.0250	33.7	1.0305	40.8
1.0031	5.1	1.0086	12.3	1.0141	19.5	1.0196	26.7	1.0251	33.8	1.0306	41.0
1.0032	5.2	1.0087	12.4	1.0142	19.6	1.0197	26.8	1.0252	34.0	1.0307	41.1
1.0033	5.4	1.0088	12.6	1.0143	19.7	1.0198	26.9	1.0253	34.1	1.0308	41.2
1.0034	5.5	1.0089	12.7	1.0144	19.9	1.0199	27.1	1.0254	34.2	1.0309	41.4
1.0035	5.6	1.0090	12.8	1.0145	20.0	1.0200	27.2	1.0255	34.4	1.0310	41.5
1.0036	5.8	1.0091	12.9	1.0146	20.1	1.0201	27.3	1.0256	34.5	1.0311	41.6
1.0037	5.9	1.0092	13.1	1.0147	20.3	1.0202	27.5	1.0257	34.6	1.0312	41.7
1.0038	6.0	1.0093	13.2	1.0148	20.4	1.0203	27.6	1.0258	34.8	1.0313	41.9
1.0039	6.2	1.0094	13.3	1.0149	20.5	1.0204	27.7	1.0259	34.9	1.0314	42.0
1.0040	6.3	1.0095	13.5	1.0150	20.6	1.0205	27.8	1.0260	35.0	1.0315	42.1
1.0041	6.4	1.0096	13.6	1.0151	20.8	1.0206	28.0	1.0261	35.1	1.0316	42.3
1.0042	6.6	1.0097	13.7	1.0152	20.9	1.0207	28.1	1.0262	35.3	1.0317	42.4
1.0043	6.7	1.0098	13.9	1.0153	21.0	1.0208	28.2	1.0263	35.4	1.0318	42.5
1.0044	6.8	1.0099	14.0	1.0154	21.2	1.0209	28.4	1.0264	35.5	1.0319	42.7
1.0045	6.9	1.0100	14.1	1.0155	21.3	1.0210	28.5	1.0265	35.7	1.0320	42.8

Sea Water Density at Various Temperatures

The purpose of this graph is to provide the density of sea water at any temperature apt to be encountered when the density at the standard temperature of 59°F. (15°C.) is known. It is intended primarily for use with this density publication which gives densities at 59°F. and with Coast and Geodetic Survey Special Publication No. 280 which gives sea water temperatures for the same stations.

To convert a density at 59°F. to density at another temperature, enter the graph horizontally from the left with the known density and downward from the top with the desired temperature; the position of the point of intersection with respect to the curves gives the density at the desired temperature. Interpolate between curves when necessary. For example, by this method, water having a density of 1.0162 at 59°F. is found to have a density of 1.0124 at 85°F.

The densities are referred to the density of fresh water at 4°C. (39.2°F.) as unity.







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